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OM protein - protein search, using sw model

Run on: June 10, 2002, 10:23:07 ; Search time 55.16 Seconds
(without alignments)
388.637 Million cell updates/sec

Title: US-09-155-327E-7
Perfect score: 1007
Sequence: 1 MATPASADPTALVADEVGY.....LTGAVALGALVTGAFRASK 193

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 747574 seqs, 111073796 residues
Total number of hits satisfying chosen parameters: 747574

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_032802.*
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2: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1981.DAT.*
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Prod. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	1007	100.0	193	20	AAV05530
2	1002	99.5	193	19	AAW61392
3	1002	99.3	193	20	AAW97392
4	1000	99.3	193	18	AAW36047
5	1000	99.3	193	20	AAV05531
6	1000	99.3	193	20	AAV05532
7	997	99.0	192	20	AAW97394
8	996	98.9	193	19	AAW61391
9	996	98.9	193	20	AAW97391
10	991	98.4	192	20	AAW97393
11	958.5	95.2	192	20	AAV05533

12	867	86.1	168	18	AAW36048
13	766	76.1	365	19	AAW59884
14	433.5	43.0	411	22	AAU00219
15	428.5	42.6	233	16	AAW68887
16	428.5	42.6	233	17	AAW05821
17	428.5	42.6	233	18	AAW31530
18	428.5	42.6	233	21	AAV69699
19	428.5	42.6	233	22	AAW64262
20	428.5	42.6	233	22	AAW73303
21	428.5	42.6	233	22	AAW50538
22	428.5	42.6	233	22	AAW47515
23	428.5	42.6	233	22	AAW19396
24	425	42.2	225	18	AAW64037
25	424.5	42.2	233	22	AAW64037
26	416.5	41.4	239	22	AAW35131
27	413	41.0	236	22	AAW87810
28	412.5	41.0	239	20	AAW74127
29	412.5	41.0	239	22	AAW70331
30	412.5	41.0	239	22	AAW35130
31	410.5	40.8	239	9	AAW80987
32	410.5	40.8	239	14	AAW42312
33	410.5	40.8	239	16	AAW70331
34	410.5	40.8	239	16	AAW71404
35	410.5	40.8	239	19	AAW40217
36	410.5	40.8	239	20	AAW87812
37	410.5	40.8	239	22	AAW08573
38	410.5	40.8	239	22	AAW64035
39	410.5	40.8	239	22	AAW64036
40	410.5	40.8	239	22	AAW74129
41	410.5	40.8	239	22	AAW48288
42	410.5	40.8	239	22	AAW50537
43	410.5	40.8	272	19	AAW21120
44	410.5	40.8	485	22	AAU00222
45	409	40.6	232	17	AAW01019

ALIGNMENTS

RESULT 1
AAV05530 standard; protein; 193 AA.
AC AAV05530:
XX 05-JUL-1999 (first entry)
XX Human Bcl-w protein essential for spermatogenesis.
DE Spermatogenesis: Bcl-3; Bcl-2; human; fertility; infertility;
KW animal model.
XX Homo sapiens.
XX W09913710-A1.
XX 25-MAR-1999.
XX 16-SEP-1998; 98WO-AU00764.
XX 16-SEP-1997; 97AU-0009228.
XX (HALL-) HALL INST MEDICAL RES WALTER & ELIZA.
XX Adams J, Cory S, Gibson L, Kentigen F, Print C;
PI WPI: 1999-243890/20.
XX N-PSDB: AAK25132.
XX An animal model exhibiting reduced levels of a Bcl-w protein and/or
XX protein associated with Bcl-w
XX Claim 2; Page 33; 52pp; English.
PS

Mouse bcl-w protei
Amino acid sequenc
Bcl-XL-PFR apoptos
Human thymus bcl-x
Bcl-XL protein. H
Human anti-apoptot
Bcl-x polypeptide.
Human Bcl-XL prote
Human Bcl-XL prote
Rat wild-type Bcl-
Human Bcl-XL prote
Protein encoded by
"Depenyl" (RTM)-1
Mutant rat Bcl-XL
Human Bcl-2 protei
Murine Bcl-2. Mus
A human Bcl-2. prot
Human bcl-2. Homo
Human Bcl-2. Homo
Sequence of bcl-2-
Bcl-2 oncogene pro
Human bcl-2 alpha
Human bcl-2. Homo
Human Bcl-2. Homo
A human Bcl-2-alph
Human Bcl-2 protei
Human Bcl-2 protei
Human Bcl-2 protei
Human bcl-2alpha.
Human Bcl-2 protei
Human Bcl-2 protei
Human bcl2 proto-o
Lfn-Bcl-XL apoptos
Apoptosis-blocking

XX The present sequence is human Bcl-w, a pro-survival member of the
 CC Bcl-2 family which is widely expressed and which is essential for
 CC spermatogenesis. The invention relates generally to a method of
 CC treatment and to an animal model for the identification of
 CC molecules and genetic sequences useful for inducing or reducing
 CC fertility of male animals. Methods are provided for the treatment
 CC of infertility, or for reducing fertility, by modulating
 CC spermatogenesis. An animal model carries a mutation is at least
 CC one allele of the human or murine bcl-w gene (see AXX25132-35) or in
 CC a gene associated with bcl-w. Such animals have disorganized
 CC seminiferous tubules and are substantially infertile, but possess no
 CC other major abnormalities as determined by histological examination.
 CC They can be used to screen for therapeutic molecules including
 CC genetic sequences capable of inducing, enhancing or otherwise
 CC facilitating spermatogenesis in animals, or which can induce
 CC infertility.

SQ Sequence 193 AA:

Query Match 100.0%; Score 1007; DB 20; Length 193;
 Best Local Similarity 100.0%; Pred. No. 2.6e-103;
 Matches 193; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MATPASAPDTRALVADPVGKIKRQKGYCGAGCGPAGPADPLHQAMRAAGDEFETRRRT 60
 Db 1 matpasapdtralvadpvgkikrqkgyvcgagpgpadplhqamraagdefetrrrt 60
 QY 61 FSDLAQQLHVTGPGSAQORFTQVSDLEFQGGPMMGRRLVAFVFGAALCAESVNMKEPVLG 120
 Db 61 fsdlaqqlhvtgpgsaqorftqvsdelifqgppmwrilvafvfgaalcaesvnmkepvlv 120
 QY 121 QVQEMWVAVLETRLDWTHSSGMAEFPTALYGDGALBEARRLREGNMASVRYTLGVAL 180
 Db 121 qvemwvavletrldwthssgmaeftalygdgaleearrlregnwasyrvltlgaval 180
 QY 181 GALVTVGAFPAK 193
 Db 181 galvtvgafpask 193

RESULT 2
 ID AAM61392 standard; Protein: 193 AA.
 XX AAM61392;

AC AAM61392;
 DT 02-OCT-1998 (first entry)
 DE Human bcl-y protein.
 KW bcl-y; bcl-2; cell death pathway; apoptotic; apoptosis; human.
 OS Homo sapiens.
 PN US5789201-A.
 PD 04-AUG-1998.
 PF 11-FEB-1997; 97US-0798897.
 PR 23-FEB-1996; 96US-0012201.
 PR 11-FEB-1997; 97US-0798897.
 PA (COCE-) COCENSYS INC.
 PI Guastella J;
 DR WPI; 1998-446079/38.
 DR N-PSDB; AAV28334.
 XX Nucleic acids encoding B-cell lymphoma-y protein - useful for

PT producing recombinant protein for use in treating uncontrolled cell
 PT growth e.g. cancers
 XX Example; Column 17/18; 27pp; English.

CC The mammalian bcl-y protein is a member of the bcl-2 family, components
 CC in the cell death pathway. The bcl-2 family have both apoptotic activity
 CC and the apoptosis blocking activity. bcl-y falls in the apoptosis
 CC activity category. The recombinant protein may be used to prevent
 CC uncontrolled cell growth, either by its direct administration to
 CC recombinant genetic constructs to increase its expression in vivo. Also,
 CC antisense constructs can be used in disorders where prevention of cell
 CC death is desired.

SQ Sequence 193 AA:

Query Match 99.5%; Score 1002; DB 19; Length 193;
 Best Local Similarity 99.5%; Pred. No. 9.3e-103;
 Matches 192; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 MATPASAPDTRALVADPVGKIKRQKGYCGAGCGPAGPADPLHQAMRAAGDEFETRRRT 60
 Db 1 matpasapdtralvadpvgkikrqkgyvcgagpgpadplhqamraagdefetrrrt 60
 QY 61 FSDLAQQLHVTGPGSAQORFTQVSDLEFQGGPMMGRRLVAFVFGAALCAESVNMKEPVLG 120
 Db 61 fsdlaqqlhvtgpgsaqorftqvsdelifqgppmwrilvafvfgaalcaesvnmkepvlv 120
 QY 121 QVQEMWVAVLETRLDWTHSSGMAEFPTALYGDGALBEARRLREGNMASVRYTLGVAL 180
 Db 121 qvemwvavletrldwthssgmaeftalygdgaleearrlregnwasyrvltlgaval 180
 QY 181 GALVTVGAFPAK 193
 Db 181 galvtvgafpask 193

RESULT 3
 ID AAM97392 standard; Protein: 193 AA.
 XX AAM97392;

AC AAM97392;
 DT 20-MAY-1999 (first entry)
 DE The human bcl-y protein.
 KW Rat bcl-y protein; Rbcl-y; human bcl-y protein; Hbcl-y; bcl-2 homologue;
 KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;
 KW head trauma; Alzheimer's Disease; neural; muscular degenerative disease;
 KW multiple sclerosis; myocardial infarction; vitally induced cell death;
 KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;
 KW premature cell death; cell death stimulator; prolonged cell life span;
 KW Kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;
 KW parasite.
 OS Homo sapiens.
 PN US5883229-A.
 PD 16-MAR-1999.
 PF 25-NOV-1997; 97US-0978523.
 PR 23-FEB-1996; 96US-0012201.
 PR 11-FEB-1997; 97US-0798897.
 PR 25-NOV-1997; 97US-0978523.
 PA (COCE-) COCENSYS INC.
 PI Guastella J;
 XX

DR WPI: 1999-214150/18.
DR N-PSDB: AAX15946.

PT Novel bcl-y homologues of the rat and human bcl-2 protein - useful
PT for modulating programmed cell death

PS Claim 1; Columns 17-18; 26pp; English.

XX The present sequence represents human bcl-y protein (Hbcl-y). The
CC specification also describes rat bcl-y protein (Rbcl-y). Rbcl-y and
CC Hbcl-y are homologues of the bcl-2 protein thought to be involved in
CC programmed cell death (apoptosis and necrosis). Rbcl-y and Hbcl-y
CC proteins may be used to treat conditions associated with a disruption of
CC the cell death pathway. If they act as cell death inhibitors, they may be
CC used in therapies to treat subjects suffering from: strokes, head trauma,
CC Alzheimer's disease, neural and muscular degenerative diseases
CC (especially multiple sclerosis), myocardial infarction, vitally induced
CC cell death, aging, spinal cord injuries and amyotrophic lateral
CC sclerosis- conditions where cells under go premature cell death as a
CC result of triggers which may or may not be apparent. They may also be
CC used in this way to develop cell lines which remain viable in culture for
CC an extended period. In contrast, if they act as cell death stimulators,
CC Rbcl-y and Hbcl-y may be used to treat conditions associated with
CC prolonged cell life span such as cancer (especially kaposi's sarcoma and
CC lung cancer) and auto/hyperimmune diseases. They may also be used to
CC cause cell death in, and hence control, parasites.

XX Sequence 193 AA;

Query Match 99.5%; Score 1002; DB 20; Length 193;
Best Local Similarity 99.5%; Pred. No. 9, 3e-103;
Matches 192; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 MATPASAPDTRALVADVFYKLRQKGYVCGAGPGEGPADPLHQAARAAGDEFETRFRRT 60
DB 1 matpasapdtralvadvfyklyrkqgyvcagpgspgadplhqnmaagdefetrfrt 60
OY 61 FSDLAQLHVTGSAQORFTQVSDLEFGGPNMGRLVAFVFGAALCAESVKNKEMPLVG 120
DB 61 fsdlaqlhvtgpgsaqrftqvdsdeltfggpnmgrlvafvfgaalcaesvknkemplvg 120
OY 121 QVOEWMAVYLETRLADWTHSSGWAFFETALYGDGALAEARRLREGMNASVRYLTGAVAL 180
DB 121 qvewmavyletrldwthssgwaefetalygdgalaearrlregmnavsryltgaval 180
OY 181 GALVTGAFEFASK 193
DB 181 galvtvgafefask 193

RESULT 4

AAW36047
ID AAW36047 standard; Protein: 193 AA.

XX AAW36047;

DT 22-APR-1998 (first entry)

XX Human bcl-w protein.

XX Bcl-w; apoptosis; bcl-2; cell survival; treatment; therapy; cancer;
KW diagnosis; degenerative disease.

OS Homo sapiens.

XX WO9735971-A1.

XX 02-OCT-1997.

XX 27-MAR-1997; 97WO-AU00199.

XX 27-MAR-1996; 96AU-0008965.

XX (AMRA-) AMRAD OPERATIONS PVTY LTD.

XX Adams JM, Cory S, Gibson LM, Holmgreen SP;

XX WPI: 1997-489635/45.

XX DR N-PSDB: AAT96577.

PT Nucleic acid encoding apoptosis related gene bcl-w - used to induce
PT or inhibit cell survival, e.g. for treatment of cancer and
PT degenerative diseases

PS Claim 6; Page 48; 86pp; English.

XX This sequence represents a novel human protein, bcl-w, encoded by the
CC bcl-2 gene family and extracted from an adult brain library. This gene
CC promotes cell survival, so its modulation is useful in treatment of
CC cancer or auto-immune diseases, degenerative diseases (e.g. stroke,
CC Alzheimer's disease, myocardial infarct, muscular degeneration, hypoxia,
CC ischaemia, human immunodeficiency virus infection or in cell transplants.
CC Up-regulation of the gene can also be used to modify cell lines cultured
CC in vivo, e.g. to develop new lines, to facilitate isolation of hybridomas
CC and to increase survival of primary explants during genetic modification.
CC It can be used to produce recombinant Bcl-w for therapy, diagnosis,
CC antibody production or screening of potential modulators.

XX Sequence 193 AA;

Query Match 99.3%; Score 1000; DB 18; Length 193;
Best Local Similarity 99.0%; Pred. No. 1, 6e-102;
Matches 191; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

OY 1 MATPASAPDTRALVADVFYKLRQKGYVCGAGPGEGPADPLHQAARAAGDEFETRFRRT 60
DB 1 matpasapdtralvadvfyklyrkqgyvcagpgspgadplhqnmaagdefetrfrt 60
OY 61 FSDLAQLHVTGSAQORFTQVSDLEFGGPNMGRLVAFVFGAALCAESVKNKEMPLVG 120
DB 61 fsdlaqlhvtgpgsaqrftqvdsdeltfggpnmgrlvafvfgaalcaesvknkemplvg 120
OY 121 QVOEWMAVYLETRLADWTHSSGWAFFETALYGDGALAEARRLREGMNASVRYLTGAVAL 180
DB 121 qvewmavyletrldwthssgwaefetalygdgalaearrlregmnavsryltgaval 180
OY 181 GALVTGAFEFASK 193
DB 181 galvtvgafefask 193

RESULT 5

AAW05531
ID AAW05531 standard; Protein: 193 AA.

XX AAW05531;

DT 05-JUL-1999 (first entry)

XX Mouse Bcl-w protein essential for spermatogenesis.

XX Spermatogenesis; Bcl-3; Bcl-2; mouse; fertility; infertility;
KW animal model.

XX Mus sp.

XX WO9913710-A1.

XX 25-MAR-1999.

XX 16-SEP-1998; 98WO-AU00764.

XX 16-SEP-1997; 97AU-0009228.

PA (HALL-) HALL INST MEDICAL RES WALTER & ELIZA.
 XX
 PI Adams J, Cory S, Gibson L, Koentgen F, Print C;
 XX
 DR WPI: 1999-243890/20.
 XX
 N-PSDB: AAX25133.
 XX
 PT An animal model exhibiting reduced levels of a Bcl-w protein and/or
 PT protein associated with Bcl-w
 XX
 PS Claim 2; Page 35; 52pp; English.
 XX
 CC The present sequence is mouse Bcl-w, a pro-survival member of the
 CC Bcl-2 family which is widely expressed and which is essential for
 CC spermatogenesis. The invention relates generally to a method of
 CC treatment and to an animal model for the identification of
 CC molecules and genetic sequences useful for inducing or reducing
 CC fertility of male animals. Methods are provided for the treatment
 CC of infertility, or for reducing fertility, by modulating
 CC spermatogenesis. An animal model carries a mutation is at least
 CC one allele of the human or murine bcl-w gene (see AAX25132-35) or in
 CC a gene associated with bcl-w. Such animals have disorganised
 CC seminiferous tubules and are substantially infertile, but possess no
 CC other major abnormalities as determined by histological examination.
 CC They can be used to screen for therapeutic molecules including
 CC genetic sequences capable of inducing, enhancing or otherwise
 CC facilitating spermatogenesis in animals, or which can induce
 CC infertility.
 CC
 XX
 SQ Sequence 193 AA;
 XX
 Query Match 99.3%; Score 1000; DB 20; Length 193;
 Best Local Similarity 99.0%; Pred. No. 1.6e-102;
 Matches 191; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
 QY 1 MATPASAPDTRALVADFGYKLRKQGYCGAGPGEPAADPLHQAARAGDEFEETRRRT 60
 Db 1 matpasapdtralvadfygkirkqgyvgagpgepaadplhqaaragdefeetrrrt 60
 QY 61 FSDLAQLHVTGSAQOQRTQVSDLEFQGGPNMGRRLVAFVFGAALCAESVNMKEPVLG 120
 Db 61 fsdlaqlhvtglsaqrftqvsdelifggpnmgrlvaflvfgaalcaesvnmkemplvg 120
 QY 121 QVOEMWAVYLETRLADWTHSSGGAETALYGDALBARRLRGNMNAVRYTLTGAVAL 180
 Db 121 qvqemwavyletrladwthssggaetalygdalbaarlrngnmnavrytltgaval 180
 QY 181 GALVTGAFPAASK 193
 Db 181 galvtgafpask 193
 RESULT 6
 AAY05532
 ID AAY05532 standard; Protein; 193 AA.
 XX
 AC AAY05532;
 XX
 DT 05-JUL-1999 (first entry)
 XX
 DE Human Bcl-w protein essential for spermatogenesis.
 XX
 KW Spermatogenesis; Bcl-3; Bcl-2; human; fertility; infertility;
 KW animal model.
 XX
 OS Homo sapiens.
 XX
 PN WO9913710-A1.
 XX
 PD 25-MAR-1999.
 XX
 PF 16-SEP-1998; 98WO-AU00764.

XX
 PR 16-SEP-1997; 97AU-0009228.
 XX
 PA (HALL-) HALL INST MEDICAL RES WALTER & ELIZA.
 XX
 PI Adams J, Cory S, Gibson L, Koentgen F, Print C;
 XX
 DR WPI: 1999-243890/20.
 XX
 N-PSDB: AAX25134.
 XX
 PT An animal model exhibiting reduced levels of a Bcl-w protein and/or
 PT protein associated with Bcl-w
 XX
 PS Disclosure; Page 37; 52pp; English.
 XX
 CC The present sequence is described of a derivative of human Bcl-w
 CC (see also AAY05530), a pro-survival member of the Bcl-2 family that
 CC is widely expressed and which is essential for spermatogenesis.
 CC The invention relates generally to a method of treatment and to an
 CC animal model for the identification of molecules and genetic
 CC sequences useful for inducing or reducing fertility of male animals.
 CC Methods are provided for the treatment of infertility, or for
 CC reducing fertility, by modulating spermatogenesis. An animal model
 CC carries a mutation is at least one allele of the human or murine
 CC bcl-w gene (see AAX25132-35) or in a gene associated with bcl-w.
 CC Such animals have disorganised seminiferous tubules and are
 CC substantially infertile, but possess no other major abnormalities
 CC as determined by histological examination. They can be used to
 CC screen for therapeutic molecules including genetic sequences
 CC capable of inducing, enhancing or otherwise facilitating
 CC spermatogenesis in animals, or which can induce infertility.
 CC
 XX
 SQ Sequence 193 AA;
 XX
 Query Match 99.3%; Score 1000; DB 20; Length 193;
 Best Local Similarity 99.0%; Pred. No. 1.6e-102;
 Matches 191; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
 QY 1 MATPASAPDTRALVADFGYKLRKQGYCGAGPGEPAADPLHQAARAGDEFEETRRRT 60
 Db 1 matpasapdtralvadfygkirkqgyvgagpgepaadplhqaaragdefeetrrrt 60
 QY 61 FSDLAQLHVTGSAQOQRTQVSDLEFQGGPNMGRRLVAFVFGAALCAESVNMKEPVLG 120
 Db 61 fsdlaqlhvtglsaqrftqvsdelifggpnmgrlvaflvfgaalcaesvnmkemplvg 120
 QY 121 QVOEMWAVYLETRLADWTHSSGGAETALYGDALBARRLRGNMNAVRYTLTGAVAL 180
 Db 121 qvqemwavyletrladwthssggaetalygdalbaarlrngnmnavrytltgaval 180
 QY 181 GALVTGAFPAASK 193
 Db 181 galvtgafpask 193
 RESULT 7
 AAW97394
 ID AAW97394 standard; Protein; 192 AA.
 XX
 AC AAW97394;
 XX
 DT 20-MAY-1999 (first entry)
 XX
 DE Mammalian bcl-y protein.
 XX
 KW Rat bcl-y protein; Rbcl-y; human bcl-y protein; Hbcl-y; bcl-2 homologue;
 KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;
 KW head trauma; Alzheimer's disease; neural; muscular degenerative disease;
 KW multiple sclerosis; myocardial infarction; vitally induced cell death;
 KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;
 KW premature cell death; cell death stimulator; prolonged cell life span;
 KW Kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;

DE The rat bcl-y protein.

XX
XX Rat bcl-y protein; Rbcl-y: human bcl-y protein; Hbcl-y: bcl-2 homologue;
KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;
KW head trauma; Alzheimer's Disease; neural; muscular degenerative disease;
KW multiple sclerosis; myocardial infarction; vitally induced cell death;
KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;
KW premature cell death; cell death stimulator; prolonged cell life span;
KW Kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;
KW parasite.

OS Rattus sp.

XX
XX US5883229-A.

XX
XX 16-MAR-1999.

XX
XX 25-NOV-1997; 97US-0978523.

XX
XX 23-FEB-1996; 96US-0012201.

XX
XX 11-FEB-1997; 97US-0798897.

XX
XX 25-NOV-1997; 97US-0978523.

XX
XX (COCE-) COCENSYS INC.

XX
XX Guastella J;

XX
XX WPI: 1999-214150/18.

XX
XX N-PSDB: AAX15945.

XX
XX Novel bcl-y homologues of the rat and human bcl-2 protein - useful
XX for modulating programmed cell death

XX
XX Disclosure; Columns 15-18; 26pp; English.

XX
XX The present sequence represents rat bcl-y protein (Rbcl-y). The
XX specification also describes human bcl-y protein (Hbcl-y). Rbcl-y and
XX Hbcl-y are homologues of the bcl-2 protein thought to be involved in
XX programmed cell death (apoptosis and necrosis). Rbcl-y and Hbcl-y
XX proteins may be used to treat conditions associated with a disruption of
XX the cell death pathway. If they act as cell death inhibitors, they may be
XX used in therapies to treat subjects suffering from: strokes, head trauma,
XX Alzheimer's Disease, neural and muscular degenerative diseases
XX (especially multiple sclerosis), myocardial infarction, vitally induced
XX cell death, aging, spinal cord injuries and amyotrophic lateral
XX sclerosis - conditions where cells under go premature cell death as a
XX result of triggers which may or may not be apparent. They may also be
XX used in this way to develop cell lines which remain viable in culture for
XX an extended period. In contrast, if they act as cell death stimulators,
XX Rbcl-y and Hbcl-y may be used to treat conditions associated with
XX prolonged cell life span such as cancer (especially Kaposi's sarcoma and
XX lung cancer) and auto/hyperimmune diseases. They may also be used to
XX cause cell death in, and hence control, parasites.

XX
XX Sequence 193 AA;

Query Match 98.9%; Score 996; DB 20; Length 193;
Best Local Similarity 98.4%; Pred. No. 4.3e-102;

Matches 190; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 MATPASAPDTRALVADFGVYKLRKQGYGAGPAGGSPADPRLHQMRAAGDEFERFRRT 60

DB 1 matpastptdtralvadfygkrlrqgyvgagpagaadpghqamraagdefetrirt 60

QY 61 FSDLAQLHVTFGSAOQRTQVSDLEFQCGPMWGRVAFVFGALCAESVKNKEKPELVG 120

DB 61 fsdlaqlhvtfgpsaqgrftgvsdelfgqpmwgr-lvafvfgalcaesvknkempevlv 120

QY 121 QVQEWAVALETRLDWMHSSGNAEFATYDGLAEFARKLRBGNMAVFTVLGAVNL 180

DB 121 qvqdmvavleerlrdwshssgnaefatlydglaeearlrregnwavsvtlvtgaval 180

QY 181 GALTVTGAFASK 193
DB 181 galvtvgafask 193

RESULT 10

AAW97393
ID AAW97393 standard; Protein; 192 AA.

AAW97393;

XX
XX 20-MAY-1999 (first entry)

DE Protein sequence of the specification.

XX
XX Rat bcl-y protein; Rbcl-y: human bcl-y protein; Hbcl-y: bcl-2 homologue;
KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;
KW head trauma; Alzheimer's Disease; neural; muscular degenerative disease;
KW multiple sclerosis; myocardial infarction; vitally induced cell death;
KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;
KW premature cell death; cell death stimulator; prolonged cell life span;
KW Kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;
KW parasite.

XX
XX Unidentified.

XX
XX US5883229-A.

XX
XX 16-MAR-1999.

XX
XX 25-NOV-1997; 97US-0978523.

XX
XX 23-FEB-1996; 96US-0012201.

XX
XX 11-FEB-1997; 97US-0798897.

XX
XX 25-NOV-1997; 97US-0978523.

XX
XX (COCE-) COCENSYS INC.

XX
XX Guastella J;

XX
XX WPI: 1999-214150/18.

XX
XX Novel bcl-y homologues of the rat and human bcl-2 protein - useful
XX for modulating programmed cell death

XX
XX Disclosure; Columns 19-20; 26pp; English.

XX
XX The specification describes rat bcl-y protein (Rbcl-y) and human bcl-y
XX protein (Hbcl-y). Rbcl-y and Hbcl-y are homologues of the bcl-2 protein
XX thought to be involved in programmed cell death (apoptosis and necrosis).
XX Rbcl-y and Hbcl-y proteins may be used to treat conditions associated
XX with a disruption of the cell death pathway. If they act as cell death
XX inhibitors, they may be used in therapies to treat subjects suffering
XX from: strokes, head trauma, Alzheimer's Disease, neural and muscular
XX degenerative diseases (especially multiple sclerosis), myocardial
XX infarction, vitally induced cell death, aging, spinal cord injuries and
XX cell death as a result of triggers which may or may not be apparent.
XX They may also be used in this way to develop cell lines which remain
XX viable in culture for an extended period. In contrast, if they act as
XX cell death stimulators, Rbcl-y and Hbcl-y may be used to treat
XX conditions associated with prolonged cell life span such as cancer
XX (especially Kaposi's sarcoma and lung cancer) and auto/hyperimmune
XX diseases. They may also be used to cause cell death in, and hence
XX control, parasites.

XX
XX Sequence 192 AA;

Query Match 98.4%; Score 991; DB 20; Length 192;
Best Local Similarity 98.4%; Pred. No. 1.5e-101;

Matches 189; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 2 ATPASAPPTRALVADVFYGYKLRQKGYVCGAGPGEGPAPDPLHOAMRAAGDEFETRRRTT 61
 DB 1 alpaspdpdtrralvadvfgykrlrqkgyvcgagpggspaadplhqamraagdefetrrtlf 60
 QY 62 SDIAAQLHVTGPSAQORFTQVSDLEFQGGPNMGRVAFVFEFGAALCAESVKNKEPVLVQ 121
 DB 61 sdiiaqlhvtgpsaqgrftqvdsdelfqggpnmgrlvaifvfgaalcaesvknkempvlvq 120
 QY 122 QOEMMAYVLETRLADWTHSSGGWAEFTALYGDALAEARLRREGNMASVRYTLTGAVALG 181
 DB 121 vqdmwvyletrladwthssggwaeftalygdaleearlrregnmawsvrytltgavalg 180
 QY 182 ALVTGAFEFASK 193
 DB 181 alvtvgaffask 192

RESULT 11
 AAY05533
 ID AAY05533 standard; Protein; 192 AA.
 XX
 AC AAY05533;
 DT 05-JUL-1999 (first entry)
 DE Mouse Bcl-w protein derivative.
 KW Spermatogenesis; Bcl-3; Bcl-2; mouse; fertility; infertility;
 KW animal model.
 OS Mus sp.
 PN WO9913710-A1.
 PD 25-MAR-1999.
 PF 16-SEP-1998; 98WO-AU00764.
 PR 16-SEP-1997; 97AU-0009228.
 PA (HALL-) HALL INST MEDICAL RES WALTER & ELIZA.
 PI Adams J, Cory S, Gibson L, Koentgen F, Print C;
 DR WPI: 1999-243890/20.
 DR N-PSDB; AAX25135.
 PT An animal model exhibiting reduced levels of a Bcl-w protein and/or
 PT protein associated with Bcl-w
 PS Disclosure: Page 39; 52pp; English.
 XX
 XX The present sequence is described of a derivative of mouse Bcl-w
 CC (see also AAY05533), a pro-survival member of the Bcl-2 family that
 CC is widely expressed and which is essential for spermatogenesis.
 CC The derivative lacks the 24 N-terminal amino acids of Bcl-w.
 CC The invention relates generally to a method of treatment and to an
 CC animal model for the identification of molecules and genetic
 CC sequences useful for inducing or reducing fertility of male animals.
 CC Methods are provided for the treatment of infertility, or for
 CC reducing fertility, by modulating spermatogenesis. An animal model
 CC carries a mutation is at least one allele of the human or murine
 CC bcl-w gene (see AAX25132-35) or in a gene associated with bcl-w.
 CC Such animals have disorganised seminiferous tubules and are
 CC substantially infertile, but possess no other major abnormalities
 CC as determined by histological examination. They can be used to
 CC screen for therapeutic molecules including genetic sequences
 CC capable of inducing, enhancing or otherwise facilitating
 CC spermatogenesis in animals, or which can induce infertility.

Sequence 192 AA;

Query Match 95.2%; Score 958.5; DB 20; Length 192;
 Best Local Similarity 94.8%; Pred. No. 6.1e-98;
 Matches 183; Conservative 6; Mismatches 3; Indels 1; Gaps 1;

QY 1 MATPASAPPTRALVADVFYGYKLRQKGYVCGAGPGEGPAPDPLHOAMRAAGDEFETRRRTT 60
 DB 1 mpaspdpdtrralvadvfgykrlrqkgyvcgagpggspaadplhqamraagdefetrrtlf 60
 QY 61 FSDIAAQLHVTGPSAQORFTQVSDLEFQGGPNMGRVAFVFEFGAALCAESVKNKEPVLVQ 120
 DB 61 fsdiiaqlhvtgpsaqgrftqvdsdelfqggpnmgrlvaifvfgaalcaesvknkempvlvq 120
 QY 121 QOEMMAYVLETRLADWTHSSGGWAEFTALYGDALAEARLRREGNMASVRYTLTGAVALG 180
 DB 121 qvdmwvyletrladwthssggwaeftalygdaleearlrregnmawsvrytltgavalg 179
 QY 181 GALVTGAFEFASK 193
 DB 180 galvtvgaffask 192

RESULT 12
 AAM36048
 ID AAM36048 standard; Protein; 168 AA.
 XX
 AC AAM36048;
 DT 22-APR-1998 (first entry)
 DE Mouse bcl-w protein.
 KW Bcl-w; apoptosis; bcl-2; cell survival; treatment; therapy; cancer;
 KW diagnosis; degenerative disease.
 OS Mus sp.
 PN WO9735971-A1.
 PD 02-OCT-1997.
 PF 27-MAR-1997; 97WO-AU00199.
 PR 27-MAR-1996; 96AU-0008965.
 PA (AMRA-) AMRAD OPERATIONS PTY LTD.
 PI Adams JM, Cory S, Gibson LM, Holmgren SP;
 DR WPI: 1997-489635/45.
 DR N-PSDB; AAT96578.
 PT Nucleic acid encoding apoptosis related gene bcl-w - used to induce
 PT or inhibit cell survival, e.g. for treatment of cancer and
 PT degenerative diseases
 PS Claim 6; Page 50-51; 86pp; English.
 XX
 XX This sequence represents a novel protein, bcl-w, encoded by the mouse
 CC bcl-2 gene family. This gene promotes cell survival, so its modulation
 CC is useful in treatment of cancer or auto-immune diseases, degenerative
 CC diseases (e.g. stroke, Alzheimer's disease, myocardial infarct, muscular
 CC degeneration, hypoxia, ischaemia, human immunodeficiency virus infection
 CC or in cell transplants. Up-regulation of the gene can also be used to
 CC modify cell lines cultured in vivo, e.g. to develop new lines, to
 CC facilitate isolation of hybridomas and to increase survival of primary
 CC explants during genetic modification. It can be used to produce
 CC recombinant Bcl-w for therapy, diagnosis, antibody production or
 CC screening of potential modulators.

Sequence 168 AA;

Query Match 86.1%; Score 867; DB 18; Length 168;

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 10, 2002, 10:23:32 ; Search time 28.15 Seconds
(without alignments)
658,801 Million cell updates/sec

Title: US-09-155-327E-7

Perfect score: 1007
Sequence: 1 MATPASAPDTRALYADPFGV.....LTGAVLALGALVTGAFRASK 193

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283138 segs, 96089334 residues

Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database :

1: PIR-71:*
2: PIR2:*
3: PIR3:*
4: PIR4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	428.5	42.6	233	2	149056 bcl-x long - mouse
2	428.5	42.6	233	2	847537 apoptosis regulato
3	424.5	42.2	233	2	551761 BCL-X protein - ra
4	423.5	42.1	233	2	A37332 transforming prote
5	414	41.1	232	2	S24390 transforming prote
6	412.5	41.0	239	1	TVHUA1 BCL-2 - rat (fragm
7	412	40.9	236	2	167432 gene bcl-2 protein
8	407	40.4	236	2	153744 transforming prote
9	406	40.3	236	1	TVMSA1 BCL-X-long - rat
10	404.5	40.2	233	2	167431 B-cell lymphoma 2
11	403	40.0	236	2	UC7383 Apoptosis regulato
12	378	37.5	190	2	A47537 bcl-x transmembran
13	377.5	37.5	214	2	149057 apoptosis regulato
14	375.5	37.3	227	2	JEO203 transforming prote
15	356	35.4	219	2	B37332 transforming prote
16	349.5	34.7	199	1	TVMSR1 transforming prote
17	346	34.4	205	1	TVHUB1 transforming prote
18	277.5	27.6	154	2	158194 gene bcl-2 protein
19	182	18.1	170	2	149055 bcl-x short - mus
20	176	17.5	211	2	S58873 Bak protein - huma
21	174	17.3	176	2	167435 gene bcl-xshort pr
22	173	17.2	211	2	S58875 cdn-2 protein - hu
23	157.5	15.6	192	2	DM7538 bcl-2-associated p
24	153	15.2	192	2	A47538 protein ced-9 (imp
25	150	14.9	261	2	H88578 apoptosis suppress
26	149.5	14.8	280	2	A53189 bcl-2-associated p
27	149.5	14.5	133	2	153295 Bax-delta protein
28	146.5	14.5	179	2	UC7255 bcl-2-associated p
29	146.5	14.5	216	2	B47538 bcl-2-associated p

30	143	14.2	177	2	S54778 NR-13 protein - qu
31	141	14.0	255	2	UC7567 Mcl-1a protein - z
32	137.5	13.7	143	2	bcl-2-associated p
33	118	11.7	175	2	Bcl-2 related - hu
34	112	11.1	350	2	BCL2 homolog MCL1
35	105	10.4	172	2	hemopoietic-specif
36	91.5	9.1	301	2	proteoblastic lipase/es
37	89	8.8	185	2	hypothetical prote
38	87	8.6	3433	1	genome polypeptidat
39	85	8.4	270	2	dihydrodipicolinat
40	85	8.4	279	2	dihydrodipicolinat
41	84.5	8.4	358	1	glutamate--ammonia
42	83	8.2	417	2	DNA binding protei
43	82.5	8.2	1440	1	genome polypeptidat
44	82.5	8.2	3432	1	genome polypeptidat
45	81.5	8.1	354	2	Gln 1.1 protein -

ALIGNMENTS

RESULT 1

149056 bcl-x long - mouse
C:Species: Mus musculus (house mouse)
C:Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 16-Jul-1999
C:Accession: 149056; S52866
R:Pang, W.; Rivard, J.J.; Mueller, D.L.; Behrens, T.W.
J. Immunol. 153, 4388-4398, 1994
A:Title: Cloning and molecular characterization of mouse bcl-x in B and T lymphocytes
A:Reference number: 149055; MUID:95052604
A:Accession: 149056
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-233 <RES>
A:Cross-references: EMBL:U10101, NID:g506647; PIDN:AAA82173.1; PID:g506648
R:Yamashita, H.; Michaud, G.Y.; Takatsu, K.; Okuma, M.
submitted to the EMBL Data Library, November 1994
A:Description: IL-5 inhibits anti-19M-induced apoptosis in an immature B cell line th
A:Reference number: S52866
A:Accession: S52866
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-233 <KAM>
A:Cross-references: EMBL:X83574; NID:g695622; PIDN:CAA58557.1; PID:g695623
C:Superfamily: bcl transforming protein

Query Match 42.6%; Score 428.5; DB 2; Length 233;
Best Local Similarity 41.3%; Pred. No. 2,9e-32;
Matches 93; Conservative 22; Mismatches 57; Indels 53; Gaps 4;

QY 11 RALVADPFGVGYLRQKGY-----V 28
DB 6 RELVVDLSYKSLKSGVSGQSFDEENRTEADEETEAERETPSAINGNPSMHLADSPAV 65
QY 29 CGAGPGCGPAD-----PLHQAMRAGDEETETFRFTSLAQLHTVPSGAOQRT 80
DB 66 NGA-TGHSISIDAREVTPMAAVKQALREAGDELELRRAFSQTLTTPETAQSF 124
QY 81 QVSDELFOGGPNNGKRLVAFVFGALCAESVKNEMETIVGOVEMVAVLETRADIHS 140
DB 125 QVNNELFRDGVNMGRIYAFSPFGALCVESVDKEMOIVSRISMATYINDLEPWIDE 184
QY 141 SGNAAEFTALYDGALEARLR--GNMASVPTVLTGAVLAL 183
DB 185 NGMDTFVDLYGNNAAESRKGQERENRMTGTGTAGVLLTSL 229

RESULT 2
B47537 apoptosis regulator bcl-xL - human
N:Alternate names: bcl-2-related protein

A:Title: Molecular cloning and DNA sequence analysis of cDNA encoding chicken homologue
 A:Reference number: S24390; MUID:92379084
 A:Accession: S24390
 A:Status: preliminary
 A:Molecule type: mRNA
 A:Residues: 1-232 <CAZ>
 A:Cross-references: EMBL:Z11961; NID:962969; PIDN:CAA78018.1; PID:962970
 C:Superfamily: bcl transforming protein
 C:Keywords: mitochondrion; transmembrane protein

Query Match 41.1%; Score 414; DB 2; Length 232;
 Best Local Similarity 37.7%; Pred. No. 6, 3e-31;
 Matches 86; Conservative 32; Mismatches 62; Indels 48; Gaps 4;

9 DTRALVADFEVGYKLRQKGYCGAG-----PDEGPAADP----- 41
 10 DNRRTIVAKYIHYKLSQRYGMAGDEDRPPVAPAPAAAPAAVAAAGASHHPSPPARL 69
 42 -----LHQMRAAGDEFEFRFRRTFSDLAQLHTVPGSAQORFTQVSDE 85
 70 LTVRCPLRCGAAPGVYHILALRQAGDEFNRXQDRFAQMSQHLTPFTARGFAVVEE 129
 86 LFQGGPMWGRIVAFVFGAALCAESVKNKEMEPVGOVQEMVAYLETPLADMIHSSGWA 145
 130 LFRGVMMWRIVAFEFEGVWCVESVNREKSPVLDVIMATMTFTYLRHLHNMIDNGGMD 189
 146 EFTALYDGALEEARLRREGNMASVRTVLTGAVALGALTYGAFEFASK 193
 190 AFVELYGN---SMRPLDFSWISLTKILSL-LVLVGACITLGAYLGHK 232

RESULT 6

transforming protein bcl-2, splice form alpha - human

C:Species: Homo sapiens (man)
 C:Date: 31-Dec-1988 #sequence, revision 07-Jun-1996 #text, change 15-Oct-1999
 C:Accession: G37332; A29409; S02452; A24428; A27622; B27622
 R:Equich, Y.; Ewert, D.L.; Tsujimoto, Y.
 Nucleic Acids Res. 20, 4187-4192, 1992
 A:Title: Isolation and characterization of the chicken bcl-2 gene: expression in a variety of tissues
 A:Reference number: A37332; MUID:92375724
 A:Accession: G37332
 A:Status: nucleic acid sequence not shown; not compared with conceptual translation
 A:Molecule type: DNA
 A:Residues: 1-239 <EGU>
 A:Note: this report is a correction
 R:Tsujimoto, Y.; Croce, C.M.
 Proc. Natl. Acad. Sci. U.S.A. 83, 5214-5218, 1986
 A:Title: Analysis of the structure, transcripts, and protein products of bcl-2, the gene for Burkitt's lymphoma
 A:Reference number: A29409; MUID:86259760
 A:Accession: A29409
 A:Molecule type: mRNA
 A:Residues: 1-95, 'A', '97-109, 'G', '111-236, 'S', '238-239 <TSU>
 A:Cross-references: GB:MI3994; NID:q179366; PIDN:AA51813.1; PID:q179367
 A:Note: this sequence has been corrected in reference A37332
 R:Seft, M.; Jaeger, U.; Hockett, R.D.; Graninger, W.; Bennett, S.; Goldman, P.; Korsmeyer, S.J.
 EMBO J. 7, 123-131, 1988
 A:Title: Alternative promoters and exons, somatic mutation and deregulation of the Bcl-2 gene
 A:Reference number: S02452; MUID:88196071
 A:Accession: S02452
 A:Molecule type: mRNA
 A:Residues: 1-239 <SEU>
 R:Cleary, M.L.; Smith, S.D.; Sklar, J.
 Cell 47, 19-28, 1986
 A:Title: Cloning and structural analysis of cDNAs for bcl-2 and a hybrid bcl-2/immunoglobulin heavy chain enhancer
 A:Reference number: A24428; MUID:87002488
 A:Accession: A24428
 A:Molecule type: mRNA
 A:Residues: 1-58, 'T', '60-116, 'R', '118-239 <CLE>
 A:Cross-references: GB:MI4745; NID:q179370; PIDN:AA35591.1; PID:q179371
 R:Ha, C.; Zorn, S.; Jensen, J.P.; Coupland, R.W.; Ko, H.S.; Wright, J.J.; Bakhshi, A.
 Oncogene Res. 2, 263-275, 1988

A:Title: Consequences of the t(14;18) chromosomal translocation in follicular lymphoma
 A:Reference number: A27622; MUID:88217344

A:Accession: A27622
 A:Molecule type: mRNA
 A:Residues: 1-58, 'T', '60-239 <HUA>
 A:Accession: B27622
 A:Molecule type: DNA
 A:Residues: 1-6, 'S', '8-58, 'T', '60-128, 'C', '130-239 <HUA>
 A:Note: the sequence was determined from the germ-line gene
 C:Comment: Constitutive expression of BCL2 following t(14;18) chromosomal translocation
 C:Genetics:
 A:Gene: GDB:BCL2
 A:Cross-references: GDB:119031; OMIM:151430
 A:Map position: 18q21.3-18q21.3
 C:Function:
 A:Description: blocks apoptosis in hematopoietic cells
 C:Superfamily: bcl transforming protein
 C:Keywords: alternative splicing; apoptosis; B-cell lymphoma; follicular lymphoma; pr

Query Match 41.0%; Score 412.5; DB 1; Length 239;
 Best Local Similarity 37.0%; Pred. No. 9e-31;
 Matches 87; Conservative 34; Mismatches 59; Indels 55; Gaps 5;

9 DTRALVADFEVGYKLRQKGYCGAG-----PGE----- 35
 10 DNRRTIVAKYIHYKLSQRYGMAGDEDRPPVAPAPAAAPAAVAAAGASHHPSPPARL 69
 36 -----GRAPD-----LHQMRAAGDEFEFRFRRTFSDLAQLHTVPGSAQOR 78
 70 SPLTPAPGAAGPALSPPVYHILALRQAGDEFNRXQDRFAQMSQHLTPFTARGR 129
 79 FTQVSDLEFQGGPMWGRIVAFVFGAALCAESVKNKEMEPVGOVQEMVAYLETPLADMI 138
 130 FATVVEELFRDGVMMWRIVAFEFEGVWCVESVNREKSPVLDVIMATMTFTYLRHLHNMIDNGGMD 189
 139 HSSGMAEFTALYDGALEEARLRREGNMASVRTVLTGAVALGALTYGAFEFASK 193
 190 QDNGGMDAFVELYGN---PSMRPLDFSWISLTKILSL-LVGACITLGAYLGHK 239

RESULT 7

BCL-2 - rat (fragment)

C:Species: Rattus norvegicus (Norway rat)
 C:Date: 26-Jul-1996 #sequence, revision 26-Jul-1996 #text, change 16-Jul-1999
 C:Accession: 167432
 R:Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L.
 Endocrinology 136, 232-241, 1995
 A:Title: Expression of members of the bcl-2 gene family in the immature rat ovary: eq
 onstitutive bcl-2 and bcl-2-like messenger ribonucleic acid levels.
 A:Reference number: 153295; MUID:95129487
 A:Accession: 167432
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-236 <RES>
 A:Cross-references: U34964; NID:q1004378; PIDN:AA77687.1; PID:q1004379
 C:Superfamily: bcl transforming protein

Query Match 40.9%; Score 412; DB 2; Length 236;
 Best Local Similarity 36.2%; Pred. No. 9.9e-31;
 Matches 84; Conservative 34; Mismatches 62; Indels 52; Gaps 3;

9 DTRALVADFEVGYKLRQKGY-----PGE----- 27
 10 DNRRTIVAKYIHYKLSQRYGMAGDEDRPPVAPAPAAAPAAVAAAGASHHPSPPARL 69
 28 -----VCGAGGEGCPAADPLHQMRAAGDEFEFRFRRTFSDLAQLHTVPGSAQORFTQ 81
 70 SPLRPLVANAAGPALSPPVYHILALRQAGDEFNRXQDRFAQMSQHLTPFTARGFRAT 129
 82 VSDLEFQGGPMWGRIVAFVFGAALCAESVKNKEMEPVGOVQEMVAYLETPLADMIHSS 141

Db 130 VEELEFRDGVNMGRIYAFEEFGVWCYESVNRNEMPLVDNIALMTEYLNRLHHTWIDN 189
 QY 142 GGMAEFTALYDGALEEARRLREGNMAVSRTVLGAVALGALVTVGAFPAK 193
 Db 190 GGMADFVELYG----PSMRPLDFDSWMSKLTLSLAL-VGACITVLGAYLGHK 236

RESULT 8

Query Match 40.4%; Score 407; DB 2; Length 236;
 Best Local Similarity 35.8%; Pred. No. 2, 9e-30;
 Matches 83; Conservative 34; Mismatches 63; Indels 52; Gaps 3;
 C:Species: Rattus norvegicus (Norway rat)
 C>Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 16-Jul-1999
 C:Accession: 153744
 R:Sato, T.; Irie, S.; Krajewski, S.; Reed, J.C.
 Gene 140, 291-292, 1994
 A:Title: Cloning and sequencing of a cDNA encoding the rat Bcl-2 protein.
 A:Reference number: 153744; MUID:94193015
 A:Accession: 153744
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-236 <RES>
 A:Cross-references: GB:L14680; NID:g408946; PIDN:AAA53662.1; PID:g408947
 C:Genetics:
 A:Gene: bcl-2
 C:Superfamily: bcl transforming protein

Query Match 40.4%; Score 407; DB 2; Length 236;
 Best Local Similarity 35.8%; Pred. No. 2, 9e-30;
 Matches 83; Conservative 34; Mismatches 63; Indels 52; Gaps 3;
 C:Species: Rattus norvegicus (Norway rat)
 C>Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 16-Jul-1999
 C:Accession: 153744
 R:Sato, T.; Irie, S.; Krajewski, S.; Reed, J.C.
 Gene 140, 291-292, 1994
 A:Title: Cloning and sequencing of a cDNA encoding the rat Bcl-2 protein.
 A:Reference number: 153744; MUID:94193015
 A:Accession: 153744
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-236 <RES>
 A:Cross-references: GB:L14680; NID:g408946; PIDN:AAA53662.1; PID:g408947
 C:Genetics:
 A:Gene: bcl-2
 C:Superfamily: bcl transforming protein

RESULT 9

transferring protein bcl-2-alpha - mouse
 C:Species: Mus musculus (house mouse)
 C>Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 18-Jun-1999
 C:Accession: A25960; E37332
 R:Neerlin, M.; Siliini, E.; Kozak, C.; Tsujimoto, Y.; Croce, C.M.
 Cell 49, 455-463, 1987
 A:Title: Molecular analysis of bcl-2: structure and expression of the murine gene homo
 A:Reference number: A90893; MUID:87187643
 A:Accession: A25960
 A:Molecule type: DNA
 A:Residues: 1-236 <NEC>
 A:Cross-references: GB:L15332; GB:M16506; NID:g468336; PIDN:AAA37282.1; PID:g387109
 R:Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.
 Nucleic Acids Res. 20, 4187-4192, 1992
 A:Title: Isolation and characterization of the chicken bcl-2 gene: expression in a varie
 A:Reference number: A37332; MUID:92375724
 A:Accession: E37332
 A:Status: preliminary; nucleic acid sequence not shown; not compared with conceptual tra
 A:Molecule type: DNA
 A:Residues: 1-33, 'E', 34-220, 'AL', 223-236 <EGU>
 C:Genetics:
 A:Gene: BCL2

A:introns: 192/3
 C:Superfamily: bcl transforming protein
 C:Keywords: alternative splicing; mitochondrion; transforming protein; transmembrane

Query Match 40.3%; Score 406; DB 1; Length 236;
 Best Local Similarity 37.1%; Pred. No. 3, 6e-30;
 Matches 86; Conservative 33; Mismatches 61; Indels 52; Gaps 5;

Query Match 40.3%; Score 406; DB 1; Length 236;
 Best Local Similarity 37.1%; Pred. No. 3, 6e-30;
 Matches 86; Conservative 33; Mismatches 61; Indels 52; Gaps 5;
 C:Species: Rattus norvegicus (Norway rat)
 C>Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 16-Jul-1999
 C:Accession: 167431
 R:Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L.
 Endocrinology 136, 232-241, 1995
 A:Title: Expression of members of the bcl-2 gene family in the immature rat ovary: eq
 A:Reference number: 153295; MUID:95129487
 A:Accession: 167431
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-233 <RES>
 A:Cross-references: EMBL:U34963; NID:g1004376; PIDN:AAA77686.1; PID:g1004377
 C:Superfamily: bcl transforming protein

RESULT 10

Query Match 40.2%; Score 404.5; DB 2; Length 233;
 Best Local Similarity 39.6%; Pred. No. 4, 8e-30;
 Matches 89; Conservative 22; Mismatches 61; Indels 53; Gaps 4;
 C:Species: Rattus norvegicus (Norway rat)
 C>Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 16-Jul-1999
 C:Accession: 167431
 R:Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L.
 Endocrinology 136, 232-241, 1995
 A:Title: Expression of members of the bcl-2 gene family in the immature rat ovary: eq
 A:Reference number: 153295; MUID:95129487
 A:Accession: 167431
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-233 <RES>
 A:Cross-references: EMBL:U34963; NID:g1004376; PIDN:AAA77686.1; PID:g1004377
 C:Superfamily: bcl transforming protein

Query Match 40.2%; Score 404.5; DB 2; Length 233;
 Best Local Similarity 39.6%; Pred. No. 4, 8e-30;
 Matches 89; Conservative 22; Mismatches 61; Indels 53; Gaps 4;

Query Match 40.2%; Score 404.5; DB 2; Length 233;
 Best Local Similarity 39.6%; Pred. No. 4, 8e-30;
 Matches 89; Conservative 22; Mismatches 61; Indels 53; Gaps 4;
 C:Species: Rattus norvegicus (Norway rat)
 C>Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 16-Jul-1999
 C:Accession: 167431
 R:Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L.
 Endocrinology 136, 232-241, 1995
 A:Title: Expression of members of the bcl-2 gene family in the immature rat ovary: eq
 A:Reference number: 153295; MUID:95129487
 A:Accession: 167431
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-233 <RES>
 A:Cross-references: EMBL:U34963; NID:g1004376; PIDN:AAA77686.1; PID:g1004377
 C:Superfamily: bcl transforming protein

RESULT 11

Query Match 40.2%; Score 404.5; DB 2; Length 233;
 Best Local Similarity 39.6%; Pred. No. 4, 8e-30;
 Matches 89; Conservative 22; Mismatches 61; Indels 53; Gaps 4;
 C:Species: Rattus norvegicus (Norway rat)
 C>Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 16-Jul-1999
 C:Accession: 167431
 R:Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L.
 Endocrinology 136, 232-241, 1995
 A:Title: Expression of members of the bcl-2 gene family in the immature rat ovary: eq
 A:Reference number: 153295; MUID:95129487
 A:Accession: 167431
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-233 <RES>
 A:Cross-references: EMBL:U34963; NID:g1004376; PIDN:AAA77686.1; PID:g1004377
 C:Superfamily: bcl transforming protein

Db 66 NGA-TGHSSTLDAREVTPMAAVKQALREADDEFELRYRAFSOUTSLHTTPTGAQSEF 124
 Oy 81 QVSELETCGGCGNNCRITAFYFPGALCAESYNNKEMELVQVQVEWVAIYETLADWHS 140
 Db 125 QVNVLETRDGGNNMRITAFYFPGALCVESYDKEMOVLRIAMATYINDLHPFIOE 184
 Oy 141 SGGNAEFTALYDGALEEAR 161
 Db 185 NGGWVTRKPLVCPESLASGR 205

RESULT 15
P27227

transforming protein (bcl-2-beta) - chicken
C:Species: Gallus gallus (chicken)
C:Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 24-Apr-1998
C:Accession: B37332; S35452
R:Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.
Nucleic Acids Res. 20, 4187-4192, 1992
A:Title: Isolation and characterization of the chicken bcl-2 gene: expression in a variety of tissues
A:Reference number: A37332; MUID:92375724
A:Accession: B37332
A:Status: nucleic acid sequence not shown
A:Molecule type: DNA
A:Residues: 1-216 <ECNU>
A:Cross-references: EMBL:D11381; EMBL:D11382
C:Superfamily: bcl transforming protein

Query Match	35.4%	Score 356;	DB 2;	Length 216;
Best Local Similarity	38.4%	Pred. No. 1,4e-25;		
Matches	71;	Conservative 21;	Mismatches 49;	Indels 44;
				Gaps 2.

QY	9	DTRALVADFEVGYKLLRQKGYVCAG-----	-EGSPADP-----	41
		: : : : : :		
Db	10	DNREIVLKYIHXYKLSORGDMAGDEDRPPVAPAPAAAPAAVAAAGASHHREPPGSA		69
QY	42	-----LHOAMRAGDDEFETFRRTFSLSLAQLVHTPSSAQRTQVSD		84
		: : : : : : : : : : : : :		
Db	70	AASEVPAPADEGLRPPAPPGYHLLALRQGDDEFSRYQDFQAPASQGLHLTPPTAGRGVAAVE		129
QY	85	ELFQGGPMWGRVLVAFVFGAALCAESVYKEMEPVLGVQVQEWVVAYLETFLAMIHSSGGM		144
		: : : : : : : : : : : :	: : : :	
Db	130	ELFRQGVNMGRIVAFEFEGGVACVESVNRKMSPLVDNLTATMWTETVLNNHLMHMDONGW		189
QY	145	AAFTTA 149		
Db	190	VRACA 194		

Search completed: June 10, 2002, 10:26:22
Job time: 170 sec

Mon Jun 10 11:32:17 2002

us-09-155-327e-7.rsp

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 10, 2002, 10:26:27 ; Search time 15.84 Seconds
(without alignments)
471.772 Million cell updates/sec

Title: US-09-155-327e-7

Perfect score: 1007
Sequence: 1 MATPASPDRALVADFEVGY.....LTGVALGALVTGAFASK 193

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 105224 seqs, 38719550 residues

Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%
Listing first 45 summaries

Database: - SwissProt_40.*

pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	1007	100.0	193	1 BCLM_HUMAN	Q92843 homo sapien
2	1000	99.3	193	1 BCLM_MOUSE	P70345 mus musculu
3	646.5	64.2	228	1 ARL_XENLA	Q91827 xenopus lae
4	433.5	42.9	228	1 BCLX_CHICK	Q07816 gallus gall
5	431.5	42.9	233	1 BCLX_PIG	077737 sus scrofa
6	428.5	42.6	233	1 BCLX_HUMAN	007817 homo sapien
7	428.5	42.6	233	1 BCLX_MOUSE	P53563 rattus norv
8	423.5	42.1	233	1 BCLX_RAT	Q00709 gallus gall
9	423.5	42.1	229	1 BCL2_CHICK	002718 bos tauru
10	416.5	41.4	236	1 BCL2_BOVIN	P49950 rattus norv
11	414	41.1	236	1 BCL2_MOUSE	P10417 mus musculu
12	413	41.0	236	1 BCL2_RAT	P10417 mus musculu
13	412.5	41.0	236	1 BCL2_HUMAN	P10417 mus musculu
14	403	40.0	236	1 BCL2_CRITO	091478 crotellus
15	371	36.8	204	1 ARL1_XENLA	Q91828 xenopus lae
16	177.5	17.5	208	1 BAK_MOUSE	008734 mus musculu
17	176	17.5	211	1 BAK_HUMAN	Q16611 homo sapien
18	173	17.2	211	1 BAK2_HUMAN	Q13014 homo sapien
19	155.5	15.4	192	1 BAXA_MOUSE	Q07813 mus musculu
20	154.5	15.3	192	1 BAXA_RAT	Q07813 mus musculu
21	153	15.2	192	1 BAXA_HUMAN	Q07812 mus musculu
22	150	14.9	280	1 CED9_CAEBL	P41958 caenorhabdi
23	147	14.6	192	1 BAXA_BOVIN	Q02703 bos tauru
24	146.5	14.5	218	1 BAXB_HUMAN	Q07814 homo sapien
25	143	14.2	177	1 NR13_COTJA	Q90343 coturnix co
26	137.5	13.7	143	1 BAXD_HUMAN	P55269 homo sapien
27	136.5	13.6	171	1 CED9_CAEBR	P41957 caenorhabdi
28	118	11.7	175	1 BCL1_HUMAN	Q16548 homo sapien
29	112	11.1	350	1 MCL1_HUMAN	Q07820 homo sapien
30	105	10.4	172	1 BFL1_MOUSE	Q07440 mus musculu
31	99.5	9.9	179	1 EAR_ASFB7	Q07819 african swi
32	98.5	9.8	179	1 EAR_ASFB7	P42485 african swi
33	98.5	9.8	179	1 EAR_ASFE4	Q07818 african swi

34	88.5	8.8	658	1 SOHC_BRAVA	P54924 bradyrhizob
35	87	8.6	3433	1 POLG_KUNUM	P14335 k genome po
36	85.5	8.5	358	1 POLG_LACSA	P23712 lactuca sat
37	82.5	8.2	1440	1 POLG_JAEVJ	P14403 j genome po
38	82.5	8.2	3432	1 POLG_JAEVJ	P32886 j genome po
39	81	8.0	396	1 POLG_PYRFU	Q51804 pyrococcus
40	79	7.8	541	1 FTCD_RAT	Q08618 rattus norv
41	79	7.8	3430	1 POLG_MNV	P06935 w genome po
42	78.5	7.8	886	1 TSSP_MOUSE	P14599 drosophila
43	78	7.7	509	1 YB48_MYCTU	Q06548 mus musculu
44	77.5	7.7	454	1 YB48_MYCTU	Q06548 mus musculu
45	77.5	7.7	454	1 YB45_MYCTU	P95269 mycobacteri

ALIGNMENTS

RESULT 1	ID	BC1M_HUMAN	STANDARD:	PRT:	193 AA.
AC	Q92843				
DT	01-NOV-1997 (rel. 35, Created)				
DT	01-NOV-1997 (rel. 35, Last sequence update)				
DT	16-OCT-2001 (rel. 40, Last annotation update)				
DE	Apoptosis regulator Bcl-2.				
GN	BCL2L2 OR BCL2 OR KIA0271.				
OS	Homo sapiens (Human).				
OC	Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;				
OC	Mammalia; Eutheria; Primates; Catarrhini; Hominoidea; Homo.				
OX	NCBI_TaxID=9606;				
RN	[1]				
RP	SEQUENCE FROM N.A.				
RX	MLINE=96358615; PubMed-8761287;				
RA	Gibson L., Holmgren S.P., Huang D.C., Bernard O., Copeland N.G.,				
RA	Jenkins N.A., Sutherland G.R., Baker E., Adams J.M., Cory S.;				
RT	"Bcl-2", a novel member of the bcl-2 family, promotes cell survival.;				
RL	Oncogene 13:665-675(1996).				
RN	[2]				
RP	SEQUENCE FROM N.A.				
RX	TISSUE=Brain;				
RA	MEDLINE=97191544; PubMed=9039502;				
RA	Nagase T., Seki N., Ishikawa K.-I., Ohira M., Kawabayashi Y.,				
RT	Ohara O., Tanaka A., Kotani H., Miyajima N., Nomura N.;				
RT	"Prediction of the coding sequences of unidentified human genes. VI.				
RT	The coding sequences of 80 new genes (KIA0201-KIA0280) deduced by				
RT	analysis of cDNA clones from cell line K5-1 and brain.;"				
RL	DNA Res. 3:321-329(1996).				
CC	- FUNCTION: PROMOTES CELL SURVIVAL.				
CC	- SUBCELLULAR LOCATION: Cytoplasmic.				
CC	- TISSUE SPECIFICITY: EXPRESSED IN ALMOST ALL MYELOID CELL LINES AND				
CC	IN A WIDE RANGE OF TISSUES, WITH HIGHEST LEVELS IN BRAIN, COLON,				
CC	AND SALIVARY GLAND.				
CC	- DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC				
CC	FUNCTION.				
CC	- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).				
CC	- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).				
CC	- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).				
CC	- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.				
CC	-----				
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CC	or send an email to license@isb.ch).				
CC	-----				
DR	EMBL: U59747; AAB09055.1; -				
DR	EMBL: D87461; BAA19666.1; -				
DR	HSSP: Q07817; IMZ.				
DR	MIM: 601931; -				
DR	InterPro: IPR002475; BCL2_family.				
DR	InterPro: IPR003093; BH4.				

DR InterPro: IPR000712; Bcl-2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 KW Apoptosis.
 FT DOMAIN 9 29 BH4.
 FT DOMAIN 85 104 BH1.
 FT DOMAIN 136 151 BH2.
 SQ SEQUENCE 193 AA; 20774 MW; 3792243A50281761 CRC64;

Query Match 100.0%; Score 1007; DB 1; Length 193;
 Best Local Similarity 100.0%; Pred. No. 2.5e-83;
 Matches 193; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MATPASADPTRALVADFGVYKLRQKGYVCGAGPGEPAADPLHQAMRAAGDEFETRRPRT 60
 DB 1 MATPASADPTRALVADFGVYKLRQKGYVCGAGPGEPAADPLHQAMRAAGDEFETRRPRT 60
 QY 61 FSDLAQLHVTGSAQOQRTQVSDLEFQGGPNMGRVAFVFGAALCAESVNMKEPVLG 120
 DB 61 FSDLAQLHVTGSAQOQRTQVSDLEFQGGPNMGRVAFVFGAALCAESVNMKEPVLG 120
 QY 121 QVOEMWAVYLETRLADWTHSSGMAEFTALYDGALEEARLRREGNMASVRYTLGAVL 180
 DB 121 QVOEMWAVYLETRLADWTHSSGMAEFTALYDGALEEARLRREGNMASVRYTLGAVL 180
 QY 181 GALVTGAFVASK 193
 DB 181 GALVTGAFVASK 193

RESULT 2
 BCLW_MOUSE STANDARD; PRT; 193 AA.
 ID BCLW_MOUSE P70345;
 AC 01-NOV-1997 (Rel. 35, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 15-JUL-1999 (Rel. 38, Last annotation update)
 DE Apoptosis regulator Bcl-W.
 GN BCL2L2 OR BCLW.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OX NCBI_TaxID=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=96358615; Pubmed=8761287;
 RA Gibson L., Holmgren S.P., Huang D.C., Bernard O., Copeland N.G.,
 RT Jenkins N.A., Sutherland G.R., Baker E., Adams J.M., Cory S.,
 RL "bcl-w, a novel member of the bcl-2 family, promotes cell survival.";
 RN Oncogene 13:663-675(1996).
 RP SEQUENCE FROM N.A.
 RC STRAIN=C57BL/10J;
 RX MEDLINE=98160183; Pubmed=9500547;
 RA Ross A.J., Maguire K.G., Moss J.E., Parlow A.F., Skinner M.K.,
 RT Russell L.D., Macgregor G.R.;
 RL "Testicular degeneration in Bclw-deficient mice."; Nat. Genet. 18:251-256(1998).
 CC -1- FUNCTION: PROMOTES CELL SURVIVAL.
 CC -1- SUBCELLULAR LOCATION: Cytoplasmic.
 CC -1- TISSUE SPECIFICITY: EXPRESSED IN ALMOST ALL MYELOID CELL LINES AND
 CC IN A WIDE RANGE OF TISSUES, WITH HIGHEST LEVELS IN BRAIN, COLON,
 CC AND SALIVARY GLAND.
 CC -1- DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC
 CC FUNCTION.

CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC -----
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DR EMBL: U59746; AAB09056.1; -.
 DR EMBL: AF030769; AAB86430.1; -.
 DR HSSP: Q07817; IMA2.
 DR MGD: MGI:108052; Bcl2l2.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; Bcl-2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 KW Apoptosis.
 FT DOMAIN 9 29 BH4.
 FT DOMAIN 85 104 BH1.
 FT DOMAIN 136 151 BH2.
 SQ SEQUENCE 193 AA; 20790 MW; 36CA185F945DEB4 CRC64;

Query Match 99.3%; Score 1000; DB 1; Length 193;
 Best Local Similarity 99.0%; Pred. No. 1e-82;
 Matches 191; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MATPASADPTRALVADFGVYKLRQKGYVCGAGPGEPAADPLHQAMRAAGDEFETRRPRT 60
 DB 1 MATPASADPTRALVADFGVYKLRQKGYVCGAGPGEPAADPLHQAMRAAGDEFETRRPRT 60
 QY 61 FSDLAQLHVTGSAQOQRTQVSDLEFQGGPNMGRVAFVFGAALCAESVNMKEPVLG 120
 DB 61 FSDLAQLHVTGSAQOQRTQVSDLEFQGGPNMGRVAFVFGAALCAESVNMKEPVLG 120
 QY 121 QVOEMWAVYLETRLADWTHSSGMAEFTALYDGALEEARLRREGNMASVRYTLGAVL 180
 DB 121 QVOEMWAVYLETRLADWTHSSGMAEFTALYDGALEEARLRREGNMASVRYTLGAVL 180
 QY 181 GALVTGAFVASK 193
 DB 181 GALVTGAFVASK 193

RESULT 3
 ARL_XENLA STANDARD; PRT; 228 AA.
 ID ARL_XENLA G91827;
 AC 091827;
 DT 01-NOV-1997 (Rel. 35, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 01-NOV-1997 (Rel. 35, Last annotation update)
 DE Apoptosis regulator R1 (XRI) (Fragment).
 OS Xenopus laevis (African clawed frog).
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidea; Pipidae;
 CC Xenopodinae; Xenopus.
 OX NCBI_TaxID=6335;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Head;

```

RA MEDLINE=95331613; PubMed=7607583;
RT Cruz-Reyes J., Tata Y.R.:
   "Cloning, characterization and expression of two Xenopus bcl-2-like
RL cell-survival genes."
CC gene 158:171-179(1995).
CC -1- FUNCTION: COULD BE THE HOMOLOG OF MAMMALIAN BCL-W.
CC -1- SUBCELLULAR LOCATION: Membrane-bound (Potential).
CC -1- DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION ONLY OCCURS IN THE
CC BRAIN OF MID-METAMORPHOSIS TO POST-METAMORPHOSIC TADPOLES AND
CC ADULTS. WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY DOMAIN 1 (BH1).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY DOMAIN 2 (BH2) .
CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
-----
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-----
CC EMBL: X82462; CAA57845.1; -.
DR HSSP: Q07817; TMAG.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR003093; BH4.
DR InterPro: IPR000712; BCL_2.
DR Pfam: PF00452; Bcl-2; 1.
DR pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00263; BH4; 1.
DR PROSITE: PS01080; BH1; 1.
DR PROSITE: PS01258; BH2; 1.
DR PROSITE: PS50062; BCL2_FAMILY; 1.
KW Apoptosis; Transmembrane.
FT FT_DOMAIN 1 139 BH1.
FT DOMAIN 171 186 BH2.
FT TRANSLEM 207 227 POTENTIAL.
SQ SEQUENCE      228 AA; 25068 MW; C49D449A585F8A9 CRC64;

Query Match          64.2%; Score 646.5; DB 1; Length 228;
Best Local Similarity 67.9%; Pred. No. 5.7e-51;
Matches 125; Conservative 21; Mismatches 35; Indels 3; Gaps 1

Oy     10 TRALAADVGVYKIRKGVCYGAGPGGPAADLIHQMARAGDEFEFRTRTESDLAQH 69
       :|||||::|||::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|
Db    48 SRAIVDELVVKIKLCQSLV---PEPGAASCALSAMSARAADDEFEEFRROAFSEISTOI 104
       |||||::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|
Oy     70 VTPGSAAQRTOYSDELFGCGPMWGLVAFFVFGAALLCAESYNMEMEPLVGVOENMVAAY 129
       ::|||::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|
Db    105 VTPTAVARRAEVAAGLSIFOGCVMWGRIVAEPVFGAALLCAESYNEMSKFLPRIDMMVTY 164
       |||||::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|
Oy    130 LETRALMIHSNGMAEFATLYGDGALLEBARLRIGGNMASVRYTLTGAVAVALGTVGAF 189
       |||:|||::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|
Db    165 LETNLRMIIQSNGMNCFLLTYDGDAIEEARRRRGSNASLKTVLTGVALGALTMTGAL 224
       |::::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|
Oy     190 PASK 193
       ||||
Db    225 FASK 228

RESULT         4
BCLX_CHICK ID            BCLX_CHICK STANDARD:                PRG:        229 AA.
AC           007816; Q98908;
DT           01-FEB-1995 (Rel. 31, Created)
DT           01-NOV-1997 (Rel. 35, Last sequence update)
DT           16-OCT-2001 (Rel. 40, Last annotation update)
DE           Apoptosis regulator Bcl-X.
GN           BCL2L OR BCLX OR BCL-X.
OS           Gallus gallus (Chicken).
```

CC Enkaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
CC Artichaula; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
CC Gallus.
CC NCBI_TaxID=9031;
CC [1]
CC SEQUENCE FROM N.A. (SHORT FORM).
CC RP MEDLINE=93364977; PubMed=8358789;
CC RA Boise L.H., Gonzalez-Garcia M., Postema C.E., Ding L., Lindsten T.,
CC RA Tuka L.A., Mao X., Nunez G., Thompson C.B.;
CC RT "bcl-2, a bcl-2-related gene that functions as a dominant regulator
CC of apoptotic cell death."
CC RL Cell 74:597-608(1993).
CC [2]
CC SEQUENCE FROM N.A. (LONG FORM).
CC RP STRAIN=HUBBARD WHITE MOUNTAIN; TISSUE=Testis;
CC RC MEDLINE=97264485; PubMed=9110311;
CC RA Villagrasa X., Mezquita C., Mezquita J.;
CC RT "Differential expression of bcl-2 and bcl-x during chicken
CC spermatogenesis."
CC RL Reprod. Dev. 47:26-29(1997).
CC RT Mcl.
CC RT -1- FUNCTION: DOMINANT REGULATOR OF APOPTOTIC CELL DEATH. THE LONG
CC FORM DISPLAYS CELL DEATH REPRESSOR ACTIVITY, WHEREAS THE SHORT
CC ISOFORM PROMOTES APOPTOSIS (BY SIMILARITY).
CC -1- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR
CC ENVELOPE (BY SIMILARITY).
CC -1- ALTERNATIVE PRODUCTS: 2 ISOFORMS: A LONG FORM (SHOWN HERE) AND A
CC SHORT FORM; ARE PRODUCED BY ALTERNATIVE SPLICING.
CC -1- TISSUE SPECIFICITY: HIGHEST EXPRESSION IN ORGANS WITH LYMPHOID
CC DEVELOPMENT.
CC -1- DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC
CC FUNCTION. INACTIVE BH1 AND BH2 DOMAINS ARE REQUIRED FOR ANTI-
CC APOPTOTIC ACTIVITY (BY SIMILARITY).
CC -1- SIMILARITY: CONTRAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
CC -1- SIMILARITY: CONTRAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
CC -1- SIMILARITY: CONTRAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
CC -1- SIMILARITY: CONTRAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
CC -----
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CC or send an email to license@sdb.ch).
CC -----
CC DR EMBL: Z33110; CAB0657.1; -
CC DR EMBL: U26645; AAB07677.1; -
CC DR PIR: A47537; A47537.
CC DR HSSP: P53563; IAF3.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR003093; BH4.
DR InterPro: IPR00712; BCL_2.
DR Pfam: PF00452; Bcl-2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00265; BH4; 1.
DR PROSITE: PS50062; BCL2_FAMILY; 1.
DR PROSITE: PS01080; BH1; 1.
DR PROSITE: PS01258; BH2; 1.
DR PROSITE: PS01259; BH3; 1.
DR PROSITE: PS01260; BH4.1; 1.
DR PROSITE: PS50063; BH4.2; 1.
KW Apoptosis; Transmembrane; Alternative splicing.
FT DOMAIN 4
FT FT 82 96 BH4.
FT FT 125 144 BH1.
FT FT 176 191 BH2.
FT TRANSMEM 206 223 POTENTIAL.
FT VARSPIC 185 229 ERYVDYGNNAALRRKQGTENKWLIGATYAGVLLGSL
LSRK -> VETALP (IN SHORT ISOFORM).
SQ SEQUENCE 229 AA: 25733 MW: A973DAHD04C0EBDA CRC64;

Query Match 42.9%; Score 432.5; DB 1; Length 229;
 Best Local Similarity 41.7%; Pred. No. 8.4e-32;
 Matches 95; Conservative 22; Mismatches 62; Indels 49; Gaps 4;

11 RALVADFEVGYKLRKGY-----VCGAGGEGE----- 37
 Db 6 RELVDFEFLSTYLSOKGYSWSPFTDVENRTEAPGCTSEATPSAINGNPSWHLADSPAV 65
 38 -----AADPLHQAARAGDEFEFRFRFSDLAOLAHVPGSAQOQFTQVSD 85
 Db 66 VHSSELEHVEHRSADVRQALRDAGDEFEFLRRASDLTSQHTTPGTAVGSFEQVNE 125
 86 LFOGGRWGLVAFYFGAALCAESYKMEKEPLVGOVDEMVAYLETRLADWISSGMA 145
 Db 126 LFHDGVNMGRIVAFESFGALCVESYDKEMRVLGRIVSMYTYLTDHLDPIQENGWE 185
 146 EFTALYDGDALGEARLRLEGNMVASVFTVLGAVALGALTYVGFASK 193
 186 RFLVDLYGNNA---AAELRKQGFENKWLIGATVAGVLL-LSLSRK 229

DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; Bcl-2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4; 1.
 DR PROSITE: PS50063; BH4.2; 1.
 DR KEGG: Apoptosis; Mitochondrion; Transmembrane.
 FT DOMAIN 4 24 BH4.
 FT DOMAIN 86 100 BH3.
 FT DOMAIN 129 148 BH1.
 FT DOMAIN 180 195 BH2.
 FT TRANSMEM 210 226 POTENTIAL.
 SQ SEQUENCE 233 AA; 26061 MW; 18BF6FA0441912B2 CRC64;

Query Match 42.9%; Score 431.5; DB 1; Length 233;
 Best Local Similarity 41.8%; Pred. No. 1.1e-31;
 Matches 94; Conservative 21; Mismatches 57; Indels 53; Gaps 4;

11 RALVADFEVGYKLRKGY-----V 28
 Db 6 RELVDFEFLSTYLSOKGYSWSPFTDVENRTEAPGCTSEATPSAINGNPSWHLADSPAV 65
 29 CGAGGEGEPAD-----PLHQAARAGDEFEFRFRFSDLAOLAHVPGSAQOQFT 80
 Db 66 NGA-TGHSSSIDAREVIRPMAVQALREAGDEFEFLRRASDLTSQHTTPGTAVGSFE 124
 81 QVSELEFPGGRNMRIRVAFYFGAALCAESYKMEKEPLVGOVDEMVAYLETRLADWISS 140
 Db 125 QVLELEFHDGVNMGRIVAFESFGALCVESYDKEMRVLGRIVSMYTYLTDHLDPIQENG 184
 141 SGMAEFTALYDGDALGEARLRLE--GNMVASVFTVLGAVALGAL 183
 Db 185 NGMDTFEVLGNMAAESRGRGERFRNFWLTGTTLAGVLLSL 229

RESULT 5
 BCLX_PIG STANDARD; PRT; 233 AA.
 AC 077737;
 DT 15-JUL-1999 (Rel. 38, Created)
 DT 15-JUL-1999 (Rel. 38, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-x.
 GN BCL2L1 OR BCL2L OR BCLX.
 OS Sus scrofa (Pig).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Suidae; Suidae; Sus.
 ON NCBI_TaxID=9823;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Bartling B., Hoffmann J., Holtz J., Schulz R., Heusch G., Darmer D.;
 RT "Expression of apoptosis-associated genes in hibernating and stunned myocardium of pig."
 RL Submitted (JAN-1998) to the EMBL/GenBank/DBJ databases.
 CC -!- FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the voltage-dependent anion channel (VDAC) by binding to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane.
 CC -!- SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (By similarity). Heterodimerization with BAX does not seem to be required for anti-apoptotic activity (By similarity).
 CC -!- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR ENVELOPE (By similarity).
 CC -!- DOMAIN: The BH4 domain is required for anti-apoptotic activity. With other Bcl2 family members are required for both heterodimerization and for proteolytically cleaved by caspases during apoptosis (By similarity). The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity (By similarity).
 CC -!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -!- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC -----
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 CC -----
 DR EMBL: AJ001203; CA004597.1; -
 DR HSSP: Q07817; INAZ.

DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; Bcl-2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4; 1.
 DR PROSITE: PS50063; BH4.2; 1.
 DR KEGG: Apoptosis; Mitochondrion; Transmembrane.
 FT DOMAIN 4 24 BH4.
 FT DOMAIN 86 100 BH3.
 FT DOMAIN 129 148 BH1.
 FT DOMAIN 180 195 BH2.
 FT TRANSMEM 210 226 POTENTIAL.
 SQ SEQUENCE 233 AA; 26061 MW; 18BF6FA0441912B2 CRC64;

Query Match 42.9%; Score 431.5; DB 1; Length 233;
 Best Local Similarity 41.8%; Pred. No. 1.1e-31;
 Matches 94; Conservative 21; Mismatches 57; Indels 53; Gaps 4;

11 RALVADFEVGYKLRKGY-----V 28
 Db 6 RELVDFEFLSTYLSOKGYSWSPFTDVENRTEAPGCTSEATPSAINGNPSWHLADSPAV 65
 29 CGAGGEGEPAD-----PLHQAARAGDEFEFRFRFSDLAOLAHVPGSAQOQFT 80
 Db 66 NGA-TGHSSSIDAREVIRPMAVQALREAGDEFEFLRRASDLTSQHTTPGTAVGSFE 124
 81 QVSELEFPGGRNMRIRVAFYFGAALCAESYKMEKEPLVGOVDEMVAYLETRLADWISS 140
 Db 125 QVLELEFHDGVNMGRIVAFESFGALCVESYDKEMRVLGRIVSMYTYLTDHLDPIQENG 184
 141 SGMAEFTALYDGDALGEARLRLE--GNMVASVFTVLGAVALGAL 183
 Db 185 NGMDTFEVLGNMAAESRGRGERFRNFWLTGTTLAGVLLSL 229

RESULT 6
 BCLX_HUMAN STANDARD; PRT; 233 AA.
 AC 007817; Q92976;
 DT 01-FEB-1995 (Rel. 31, Created)
 DT 01-FEB-1995 (Rel. 31, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Apoptosis regulator Bcl-x.
 GN BCL2L1 OR BCL2L OR BCLX.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominiidae; Homo.
 ON NCBI_TaxID=9606;
 RN [1]
 RP SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(S)).
 RX MEDLINE=93364977; PubMed=8358789;
 RA Bolise L.H., Gonzalez-Garcia M., Postema C.E., Ding L., Lindsten T.,
 RA "Bcl-x, a bcl-2-related gene that functions as a dominant regulator of apoptotic cell death."
 RT Cell 74:597-608(1993).
 RL [2]
 RP SEQUENCE FROM N.A. (ISOFORM BETA).
 RA Inohara N., Ohta S.;
 RL Submitted (OCT-1996) to the EMBL/GenBank/DBJ databases.
 RN [3]
 RP MUTAGENESIS OF GLY-138, AND HETERODIMERIZATION.
 RX MEDLINE=95372373; PubMed=7644501;
 RA Sedlak T.W., Oltvai Z.N., Yang E., Wang K., Bolise L.H., Thompson C.B.,
 RA Korsmeyer S.J.;

RT "Multiple Bcl-2 family members demonstrate selective dimerizations
with Bax.";
Proc. Natl. Acad. Sci. U.S.A. 92:7834-7838(1995).
[4]
RN MUTAGENESIS OF BH1 AND BH2 DOMAINS.
RP MEDLINE-96170038; PubMed-8596636;
RX Cheng E.H.-Y., Levine B., Boise L.H., Thompson C.B., Hardwick J.M.,
RA Korsmeyer S.J.;
RT "Bax-independent inhibition of apoptosis by Bcl-XL.";
RN Nature 379:554-556(1996).
[5]
RP STRUCTURE BY NMR OF 1-209.
RX MEDLINE-97172562; PubMed-9020082;
RA Settler M., Liang H., Nettlesheim D., Meadows R.P., Harlan J.E.,
Eberstadt M., Yoon H.S., Shuker S.B., Chang B.S., Minn A.J.,
Thompson C.B., Fesik S.W.;
RT "Structure of Bcl-XL-Bax peptide complex: recognition between
regulators of apoptosis.";
RN Science 275:983-986(1997).
[6]
RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS), AND STRUCTURE BY NMR OF 1-209.
RX MEDLINE-9626675; PubMed-8692274;
RA Muchmore S.W., Settler M., Liang H., Meadows R.P., Harlan J.E.,
Yoon H.S., Nettlesheim D., Chang B.S., Thompson C.B., Wong S.L.,
Ng S.L., Fesik S.W.;
RT "X-ray and NMR structure of human Bcl-XL, an inhibitor of programmed
cell death.";
RN Nature 381:335-341(1996).
[7]
RP CLEAVAGE BY CASPASES, AND MUTAGENESIS OF ASP-61.
RX MEDLINE-98118550; PubMed-9435230;
RA Clem R.J., Cheng E.H.-Y., Karp C.L., Kirsch D.G., Ueno K.,
Takahashi A., Kastan M.B., Griffin D.E., Earnshaw W.C., Velliona M.A.,
Hardwick J.M.;
RT "Modulation of cell death by Bcl-XL through caspase interaction.";
RN Proc. Natl. Acad. Sci. U.S.A. 95:554-559(1998).
CC -1- FUNCTION: Potent inhibitor of cell death. Inhibits activation of
caspases (by similitarity). Appears to regulate cell death by
blocking the voltage-dependent anion channel (VDAC) by binding
to it and preventing the release of the caspase activator.
CC cytochrome c, from the mitochondrial membrane. The Bcl-X(S)
isoform promotes apoptosis.
CC -1- SUBUNIT: Bcl-X(L) forms heterodimers with BAX, BAK and Bcl-2.
CC Heterodimerization with BAX does not seem to be required for anti-
apoptotic activity.
CC -1- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR
ENVELOPE (BY SIMILARITY).
CC -1- ALTERNATIVE PRODUCTS: 3 ISOFORMS: BCL-X(L) (SHOWN HERE), BCL-X(S)
AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.
CC -1- TISSUE SPECIFICITY: BCL-X(S) IS EXPRESSED AT HIGH LEVELS IN CELLS
THAT UNDERGO A HIGH RATE OF TURNOVER, SUCH AS DEVELOPING
LYMPHOCTES. IN CONTRAST, BCL-X(L) IS FOUND IN TISSUES CONTAINING
LONG-LIVED POSTMITOTIC CELLS, SUCH AS ADULT BRAIN.
CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity.
CC The BH1 and BH2 domains are required for both heterodimerization
with other Bcl2 family members and for repression of cell death.
CC -1- PTM: Proteolytically cleaved by caspases during apoptosis. The
cleaved protein, lacking the BH4 domain, has pro-apoptotic
activity.
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY DOMAIN 1 (BH1).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY DOMAIN 2 (BH2).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY DOMAIN 3 (BH3).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY DOMAIN 4 (BH4).
CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
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or send an email to license@isb-sib.ch).

DR EMBL; Z23116; CAA80662.1; -
DR EMBL; Z23115; CAA80661.1; -
DR EMBL; U72398; AAB17354.1; -
DR PDB; 1BXL; 29-OCT-97.
DR PDB; 1LXL; 21-APR-97.
DR PDB; 1MAZ; 21-APR-97.
DR MIM; 600039; -
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR003093; BH4.
DR InterPro: IPR000712; BCL2.
DR Pfam; PF00452; Bcl-2; 1.
DR Pfam; PF02180; BH4; 1.
DR SMART; SM00337; BCL; 1.
DR SMART; SM00265; BH4; 1.
DR PROSITE; PS50062; BCL2_FAMILY; 1.
DR PROSITE; PS01080; BH1; 1.
DR PROSITE; PS01258; BH2; 1.
DR PROSITE; PS01259; BH3; 1.
DR PROSITE; PS01260; BH4_1; 1.
DR PROSITE; PS50063; BH4_2; 1.
DR Apoptosis; Mitochondrion; Alternative splicing; Transmembrane;
KW 3d-structure.
FT DOMAIN 4 24 BH4.
FT 86 100 BH3.
FT DOMAIN 129 148 BH1.
FT DOMAIN 180 195 BH2.
FT TRANSMEM 210 226 POTENTIAL.
FT SITE 61 61 CLEAVAGE BY CASPASE-1.
FT VARSPIC 126 188 MISSING (IN ISOFORM BCL-X(S)).
FT VANSPLIC 189 233 D->A: NO CLEAVAGE BY CASPASE-1 NOR BY
CASPASE-3.
FT MUTAGEN 61 61 D->A: NO CLEAVAGE BY CASPASE-1 NOR BY
CASPASE-3.
FT MUTAGEN 131 133 FRD->VRA: NO HETERODIMERIZATION WITH BAX.
FT MUTAGEN 135 137 VNM->ALT: LOSS OF ANTI-APOPTOTIC
ACTIVITY.
FT MUTAGEN 138 140 GRI->ELN: LOSS OF ANTI-APOPTOTIC
ACTIVITY.
FT MUTAGEN 138 138 G->A: NO HETERODIMERIZATION WITH BAX.
FT MUTAGEN 148 148 G->E: NO HETERODIMERIZATION WITH BAX.
FT MUTAGEN 156 156 D->A: NO EFFECT ON CASPASE-1 CLEAVAGE.
FT MUTAGEN 176 176 D->A: NO EFFECT ON CASPASE-1 CLEAVAGE.
FT MUTAGEN 186 189 WD->GA: REDUCES ANTI-APOPTOTIC ACTIVITY
BY ABOUT HALF.
FT MUTAGEN 189 189 D->A: NO EFFECT ON CASPASE-1 CLEAVAGE.
FT CONFLICT 70 70 G->A (IN REF. 1; CAA80661).
FT SEQUENCE 233 AA; 26049 MW; E09D3CDB851AE9BE CRC64;
Query Match 42.6%; Score 428.5; DB 1; Length 233;
Best Local Similarity 41.3%; Pred. No. 2e-31;
Matches 93; Conservative 22; Mismatches 57; Indels 53; Gaps 4;
Y 11 RLVAADFVGYKLRKGY-----Y 28
DB 6 RELVADFVLYKLSQKYSMSQSDVDENTTEAPBEGTESMETPSALINGNPSHLADSPAV 65
Y 29 CGAGPEGGPAD-----PLHQAKRAAGDEFERFRFTESDLAQLHTVPGSAQDRPT 80
DB 66 NGA-TGHSSLDAREVYIPAAVKQALREAGDEFELRYRAFSDLNSQLHTPGTAYOSFE 124
Y 81 QVSDLEFGCGPWNKRLVAFVFGAALCASVKKKEPLVGOVEMVAVLEFRLLADWHS 140
DB 125 QVAVNELFRGCVWNRIVAFPSFGALCVSVDEKQVLSRAAMWATYLLNDHLEPWIOE 184
Y 141 SGGMAEFALYDGALEEARLRE--GNWASVRYTLTGAVAGAL 183
DB 185 NGWMDFVELIYGNMAAESRKQGERNRNRFILGMYVAGVYLLGSL 229
RESULT 7
BCLX_MOUSE

ID BCLX_MOUSE STANDARD; PRT; 233 AA.
AC Q64373; Q60657; Q60658; Q61338;
DT 01-NOV-1997 (Rel. 35, Created)
DT 01-NOV-1997 (Rel. 35, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Apoptosis regulator Bcl-x.
GN BCL2L1 OR BCL2L OR BCLX.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6; TISSUE=Brain;
RX MEDLINE=9531139; PubMed=7607090;
RA Gonzalez-Garcia M., Perez-Ballester R., Ding L., Duan L., Boise L.H.,
RT Thompson C.B., Nunez G.;
RT "bcl-xL is the major bcl-x mRNA form expressed during murine
development and its product localizes to mitochondria.";
RL Development 120:3033-3042(1994).
RN [3]
RP SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(BETA)).
RC TISSUE=Pre-B cell;
RX MEDLINE=95052604; PubMed=7963517;
RA Fang W., Rivard J.J., Mueller D.L., Behrens T.W.;
RT "Cloning and molecular characterization of mouse bcl-x in B and T
lymphocytes.";
RL Immunol. 153:4388-4398(1994).
RN [4]
RP SEQUENCE FROM N.A. (ISOFORM X(BETA)).
RC STRAIN=C57BL/6 X CBA; TISSUE=Thymus;
RX MEDLINE=96051053; PubMed=9390687;
RA Yang X.-F., Weber G.F., Cantor H.;
RT "A novel Bcl-x isoform connected to the T cell receptor regulates
apoptosis in T cells.";
RL Immunity 7:629-639(1997).
RN [5]
RP SEQUENCE FROM N.A.
RX MEDLINE=97289584; PubMed=9144489;
RA Grillo D.A., Gonzalez-Garcia M., Ekheraie D., Duan L., Inohara N.,
RT Ohta S., Seidman M.F., Nunez G.;
RT "Genomic organization, promoter region analysis, and chromosome
localization of the mouse bcl-x gene.";
RL J. Immunol. 158:4750-4757(1997).
CC -1- FUNCTION: Potent inhibitor of cell death. Inhibits activation of
caspases (by similarity). Appears to regulate cell death by
blocking the voltage-dependent anion channel (VDAC) by binding
to it and preventing the release of the caspase activator,
cytochrome c, from the mitochondrial membrane. The Bcl-x(s)
isoform promotes apoptosis.
CC -1- SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (by
similarity). Heterodimerization with BAX, BAK and Bcl-2 (by
similarity) required for anti-apoptotic activity (by similarity).
CC -1- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANE AND PERINUCLEAR
ENVELOPE FOR BCL-X(L). CYTOPLASMIC FOR BCL-X(DELTA-TM).
CC -1- ALTERNATIVE PRODUCTS: 4 ISOFORMS: BCX-X(L) (SHOWN HERE), BCL-X(S),
BCL-X(BETA) AND BCL-X(DELTA-TM); ARE PRODUCED BY ALTERNATIVE
SPLICING.
CC -1- TISSUE SPECIFICITY: WIDELY EXPRESSED, WITH HIGHEST LEVELS IN THE
BRAIN, THYMUS, BONE MARROW, AND KIDNEY. BCL-X(L) AND BCL-X(DELTA-
TM) EXPRESSION IS ENHANCED IN B AND T LYMPHOCYTES THAT HAVE BEEN
ACTIVATED.
CC -1- DEVELOPMENTAL STAGE: BCL-X(BETA) IS EXPRESSED IN BOTH EMBRYONAL AND
POSTNATAL TISSUES. WHEREAS BCL-X(L) IS PREDOMINANTLY FOUND IN
POSTNATAL TISSUES.
CC -1- DOMAIN: The BH1 and BH2 domains are required for anti-apoptotic activity.
CC The BH1 and BH2 domains are required for both heterodimerization
with other Bcl2 family members and for repression of cell death.

CC -1- PTM: Proteolytically cleaved by caspases during apoptosis (By
similarity). The cleaved protein, lacking the BH1 domain, has pro-
apoptotic activity (by similarity).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
CC
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the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
or send an email to license@isb-sib.ch).

CC EMBL; X83574; CAA58557.1; -
CC EMBL; L35049; AAA51039.1; -
CC EMBL; L35048; AAA51040.1; -
CC EMBL; U01010; AAA82174.1; -
CC EMBL; U01010; AAA82173.1; -
CC EMBL; U01010; AAA82172.1; -
CC EMBL; U51279; AAC53460.1; -
CC EMBL; U78031; AAB96881.1; -
CC EMBL; U78030; AAB96881.1; JOINED.
CC HSP; P53563; IAF3.
CC MCD; MGT; 88139; Bcl2L.
CC InterPro; IPR002475; BCL2_family.
CC InterPro; IPR003093; BH.
CC InterPro; IPR000712; Bcl-2.
CC Pfam; PF00452; Bcl-2; 1.
CC Pfam; PF02180; BH4; 1.
CC SMART; SM00337; BCL; 1.
CC SMART; SM00265; BH4; 1.
CC PROSITE; PS50062; BCL2_FAMILY; 1.
CC PROSITE; PS01080; BH1; 1.
CC PROSITE; PS01258; BH2; 1.
CC PROSITE; PS01259; BH3; 1.
CC PROSITE; PS01260; BH4; 1; 1.
CC PROSITE; PS50063; BH4_2; 1.
CC Apoptosis; Mitochondrion; Alternative splicing; Transmembrane.
CC DOMAIN
CC FT 6
CC FT 86 100 BH3.
CC FT DOMAIN 129 148 BH1.
CC FT DOMAIN 180 195 BH2.
CC FT TRANSMEM 210 226 POTENTIAL.
CC FT VARSPLIC 126 188 MISSING (IN ISOFORM BCL-X(S)).
CC FT VARSPLIC 189 233 DFEVDLGNNAAESRKGQERFNRFLTGMTVAGVILGSLFSRK
CC FT -> GHDGWCAGSLTLTQSEVTRH (IN ISOFORM BCL-
CC FT X(DELTA-TM)).
CC SQ SEQUENCE 233 AA; 26132 MW; 24D2AC79687E072E CRC64;

Query Match 42.6%; Score 428.5; DB 1; Length 233;
Best Local Similarity 41.3%; Pred. No. 2e-31;
Matches 93; Conservative 22; Mismatches 57; Indels 53; Gaps 4;
DB 11 RALVADFWGKIRKQGY-----V 28
DB 6 RELVADFSLYKSKQGYSMQFSQVEENRTEAPEETEARETPSAINGNPSMHLADSPAV 65
DB 29 CGAGGEGEPAD-----PLHQAMRAAGDEFRFRRTSDLAOLHTPGSAQGRFT 80
DB 66 NGA-TGHSSSLDAREVIDMAVAKQALREAGDEFLRRARRASDLSLTHTPGTAYSFE 124
DB 81 QVSDLEFGGPMWGRVLAFFVFGAALCAESVKNKEEPLVGGVOVMVAVLETRADNTHS 140
DB 125 QVNNLEFNDGVNKGWIVAFSFGGALCVESVDKEMQVLYVSLASWMTYLLNDHLEPIQE 184

QY 81 QVSELEFGGPMGRGLVAFVFGALCAESYKMEPELVGOVEMVAYLETRLADHHS 140
 DB 125 QVNELEFDDGVNMGRIYAFEFSGALCVESDKRMQVLVSRIASMTYTLNDHLEPWIQ 184
 QY 141 SGGNAEFTALYGDALDEARLR--GNMASVFTVLTGAVALGAL 183
 DB 185 NGMDTFVDYLGNNAAESRRGDERFNRWPLTGMTVAGVLLGSL 229
 RESULT 9
 BCL2_CHICK
 ID BCL2_CHICK STANDARD; PRT; 233 AA.
 AC Q00709;
 DT 01-APR-1993 (Rel. 25, Created)
 DT 01-APR-1993 (Rel. 25, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-2.
 GN BCL2 OR BCL-2.
 OS Gallus gallus (Chicken).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
 OC Gallus.
 OX NCBI_TaxID=9031;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA MEDLINE=92375724; PubMed=1508712;
 RA Eguchi Y., Ewert D.L., Tsujimoto Y.;
 RT "Isolation and characterization of the chicken bcl-2 gene: expression
 RT in a variety of tissues including lymphoid and neuronal organs in
 RT adult and embryo.";
 RT Nucleic Acids Res. 20:4187-4192(1992).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC TISSUE-B-cell lymphoma;
 RX MEDLINE=92379084; PubMed=1511008;
 RX Cazals-Hatem D.L., Louie D.C., Tanaka S., Reed J.C.;
 RT "Molecular cloning and DNA sequence analysis of cDNA encoding chicken
 RT homologue of the Bcl-2 oncogene.";
 RT Blochm. Biophys. Acta 1133:109-113(1992).
 CC -1- FUNCTION: Suppresses apoptosis in a variety of cell systems
 CC including factor-dependent lymphohematopoietic and neural cells.
 CC Regulates cell death by controlling the mitochondrial membrane
 CC permeability. Appears to function in a feedback loop system with
 CC caspases. Inhibits caspase activity either by preventing the
 CC release of cytochrome c from the mitochondria and/or by binding to
 CC the apoptosis-activating factor (Apaf-1).
 CC -1- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and
 CC Bcl-X(L). Heterodimerization with BAX requires intact BH1 and BH2
 CC domains, and is necessary for anti-apoptotic activity (By
 CC similarity). Also interacts with APAF-1 and RAIF-1 (By similarity).
 CC -1- SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
 CC membrane of the nuclear envelope and the endoplasmic reticulum.
 CC -1- TISSUE SPECIFICITY: In adult chicken expressed, in thymus, spleen,
 CC kidney, heart, ovary and brain, with the highest levels in the
 CC thymus. In the embryo, highly levels expressed in all tissues with
 CC high levels in the bursa of Fabricius.
 CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity and
 CC for interaction with RAIF-1 (By similarity).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
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 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).

DR EMBL: D11382; BAA01978.1; -
 DR EMBL: D11381; BAA01978.1; JOINED.
 DR EMBL: 211961; CAA78018.1; -
 DR PIR: A37332; A37332.
 DR PIR: S24390; S24390.
 DR HSP: C07817; IMA2.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR00712; Bcl_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS0062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS0063; BH4_2; 1.
 DR Apoptosis; Transmembrane; Mitochondrion.
 FT DOMAIN 10 30
 FT DOMAIN 87 101
 FT DOMAIN 130 149
 FT DOMAIN 181 196
 FT TRANSMEM 208 228
 FT CONFLICT 64 64
 FT CONFLICT 67 82
 FT CONFLICT 121 121
 FT CONFLICT 139 139
 FT SEQUENCE 233 AA; 25687 MW; 5252555ACBE64C3D CRC64;
 Query Match 42.1%; Score 423.5; DB 1; Length 233;
 Best Local Similarity 38.0%; Pred. No. 5; se-31;
 Matches 87; Conservative 32; Mismatches 61; Indels 49; Gaps 4;
 QY 9 DTRALVADVFGYKLRQGYCGAG-----PGEPAADP----- 41
 DB 10 DNRRLVLYKHYIKLSQGYDMAGEDRPVPAAPAAAPAAVAAAGASSHRRPEPGSA 69
 QY 42 -----LHQMRAAGDEFEETRRRTFSDLAOLHYTPGSAQGRFTQVSD 84
 DB 70 AASVPPAEGLRPAPPCVHLALRQAGDEFRRYQRFQMSGOLHTLPFAHGRFAVVE 129
 QY 85 ELFGGPMGRGLVAFVFGALCAESYKMEPELVGOVEMVAYLETRLADHSSGM 144
 DB 130 ELFRDGVNMGRIYAFEFSGALCVESDKRMQVLVSRIASMTYTLNDRHNMIDONGM 189
 QY 145 AEFALYGDALDEARLR--GNMASVFTVLTGAVALGAVTGAFFPAK 193
 DB 190 DAFVELYGN-----SMRLEFDFSWISIKTILS-LVLVAGACITIGAYLGHK 233
 RESULT 10
 BCL2_BOVIN
 ID BCL2_BOVIN STANDARD; PRT; 229 AA.
 AC Q02718;
 DT 16-OCT-2001 (Rel. 40, Created)
 DT 16-OCT-2001 (Rel. 40, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-2.
 GN BCL2.
 OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Bovinae; Bos.
 OX NCBI_TaxID=9913;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN=HOLSTEIN; TISSUE=Thymus;
 RA Reyes R.A., Cockrell G.L.;
 RT "Bovine leukemia virus associated-leukemogenesis is correlated

RT with suppression of programmed cell death and increased expression
 of Bcl-2.
 RL Submitted (MAR-1997) to the EMBL/GenBank/DBJ databases.
 CC -1- FUNCTION: Suppresses apoptosis in a variety of cell systems
 including factor-dependent lymphohematopoietic and neural cells.
 CC Regulates cell death by controlling the mitochondrial membrane
 permeability. Appears to function in a feedback loop system with
 caspases. Inhibits caspase activity either by preventing the
 release of cytochrome c from the mitochondria and/or by binding to
 the apoptosis-activating factor (Apaf-1) (By similarity).
 CC -1- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and
 Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2
 domains, and is necessary for anti-apoptotic activity (By
 similarity). Also interacts with Apaf-1 and Raf-1 (By similarity).
 CC -1- SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
 membrane of the nuclear envelope and the endoplasmic reticulum (By
 similarity).
 CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity and
 for interaction with Raf-1 (By similarity).
 CC -1- PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2
 anti-apoptotic activity. Growth factor-stimulated phosphorylation
 on Ser-70 by PKC is required for the anti-apoptosis activity and
 occurs during the G2/M phase of the cell cycle (By similarity). In
 the absence of growth factors, Bcl2 appears to be phosphorylated
 by other protein kinases such as ERKs and stress-activated
 kinases. Dephosphorylated by protein phosphatase 2A (PP2A) (By
 similarity).
 CC -1- PTM: Proteolytically cleaved by caspases during apoptosis. The
 cleaved protein, lacking the BH4 domain, has pro-apoptotic
 activity, causes the release of cytochrome c into the cytosol
 promoting further caspase activity (By similarity).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC
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 or send an email to license@isb-sib.ch).
 CC
 DR EMBL: U92434; AAB5319.1; -
 DR HSP: Q07817; IMAZ.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; Bcl-2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS00063; BH4_2; 1.
 DR Apoptosis; Transmembrane; Mitochondrion; Phosphorylation.
 KW DOMAIN 10
 FT DOMAIN 64
 FT DOMAIN 69
 FT DOMAIN 72
 FT DOMAIN 83
 FT DOMAIN 97
 FT DOMAIN 126
 FT DOMAIN 145
 FT DOMAIN 177
 FT DOMAIN 192
 FT TRANSMEM 202
 FT SITE 34
 FT MOD_RES 63
 SEQUENCE 229 AA; 25099 MW; AD1D0AF98FFI1D CRC64;

Query Match 41.4%; Score 416.5; DB 1; Length 229;
 Best Local Similarity 38.2%; Pred. No. 2,3e-30;
 Matches 86; Conservative 35; Mismatches 59; Indels 45; Gaps 5;
 QY 9 DTRALVADFGVKKLRQKQIVCGAG-----TGE----- 35
 DB 10 DREELVMKVIHYKLSQRCYEMDAGDAGAPGAPAPGISLSPGRPPAPRTSPPPPA 69
 QY 36 ---GPAAP---LHQARRAGDEFEFRFRFSLAQLHVFSGSAQRFQYSDLEFQ 88
 DB 70 AAAGPAPSPVPVPHLTTRQAGDDSRKRRDFAMSSQLHPTFAERATVVEELFR 129
 QY 89 GSPNMGRLVAFVFGALCAESVKNEMPELVGOVEMVAVLETRLADWIIHSGMAEFT 148
 DB 130 DGVNMGRLVAFVFGVGVCSVNSREMSPLVDSIALMTETLRHLHTWIDNGMDAFV 189
 QY 149 ALYGGALLEANRLREGMNASRYTLTGAVALGALVYTGAFPAK 193
 DB 190 ELYG----PSMRPLDFSWLSLKALLSLAL-VGACITTGAVYGRK 229
 RESULT 11
 BCL2_RAT STANDARD; PRT; 236 AA.
 AC P49950; Q62837; Q64032;
 DT 01-OCT-1996 (Rel. 34, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-2.
 GN BCL2 OR BCL-2.
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Rattus.
 OX NCBI_TaxID=10116;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Brain;
 RX MEDLINE=94193015; PubMed=8144041;
 RA Sato T., Irie S., Krajewski S., Reed J.C.;
 RT "Cloning and sequencing of a cDNA encoding the rat Bcl-2 protein.";
 RL Gene 140:291-292(1994).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Ovary;
 RX MEDLINE=95129487; PubMed=7828536;
 RA Tilly J.L., Tilly K.L., Kenton M.L., Johnson A.L.;
 RT "Expression of members of the bcl-2 gene family in the immature rat
 ovary: equine chorionic gonadotropin-mediated inhibition of granulosa
 cell apoptosis is associated with decreased bax and constitutive
 bcl-2 and bcl-xlong messenger ribonucleic acid levels.";
 RL Endocrinology 136:232-241(1995).
 RN [3]
 RP SEQUENCE OF 19-172 FROM N.A.
 RX MEDLINE=95059917; PubMed=7969891;
 RA Castren E., Onga Y., Berzaghi M.P., Tzimagiorgis G., Thoenen H.,
 RA Lindholm D.;
 RT "Bcl-2 messenger RNA is localized in neurons of the developing and
 adult rat brain.";
 RL Neuroscience 61:165-177(1994).
 CC -1- FUNCTION: Suppresses apoptosis in a variety of cell systems
 including factor-dependent lymphohematopoietic and neural cells.
 CC Regulates cell death by controlling the mitochondrial membrane
 permeability. Appears to function in a feedback loop system with
 caspases. Inhibits caspase activity either by preventing the
 release of cytochrome c from the mitochondria and/or by binding to
 the apoptosis-activating factor (Apaf-1).
 CC -1- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and
 Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2
 domains, and is necessary for anti-apoptotic activity (By
 similarity). Also interacts with Apaf-1 and Raf-1 (By similarity).
 CC -1- SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
 membrane of the nuclear envelope and the endoplasmic reticulum.
 CC -1- TISSUE SPECIFICITY: Expressed in a variety of tissues, with

highest levels in reproductive tissues. In the adult brain, expression is localized in mitral cells of the olfactory bulb, granule and pyramidal neurons of hippocampus, pontine nuclei, cerebellar granule neurons, and in ependymal cells. In prenatal brain, expression is higher and localized in the neuroepithelium and in the cortical plate.

-1- DOMAIN: The Bcl2 domain is required for anti-apoptotic activity and for interaction with Raf-1 (By similarity).

-1- PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases.

-1- PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the Bcl2 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity (By similarity).

-1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).

-1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).

-1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).

-1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.

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CC EMBL: L14680; AAA53662.1; -

CC EMBL: U34964; AAA77687.1; -

CC HSSP: 007817; 1MAZ.

CC InterPro: IPR002475; BCL2_family.

CC InterPro: IPR003093; BH4.

CC InterPro: IPR00712; BCL2_2.

CC Pfam: PF00452; Bcl-2; 1.

CC Pfam: PF02180; BH4; 1.

CC SMART: SM00337; BCL; 1.

CC SMART: SM00265; BH4; 1.

CC PROSITE: PS50062; BCL2_FAMILY; 1.

CC PROSITE: PS01080; BH1; 1.

CC PROSITE: PS01258; BH2; 1.

CC PROSITE: PS01259; BH3; 1.

CC PROSITE: PS01260; BH4_1; 1.

CC PROSITE: PS50063; BH4_2; 1.

CC Apoptosis; Transmembrane; Mitochondrion; Phosphorylation.

CC DOMAIN 10 30 BH4.

CC DOMAIN 90 104 BH3.

CC DOMAIN 133 152 BH1.

CC DOMAIN 184 199 BH2.

CC TRANSMEM 209 230 POTENTIAL.

CC SITE 34 35 CLEAVAGE (BY CASPASES) (BY SIMILARITY).

CC MOD_RES 70 70 PHOSPHORYLATION (BY PKC) (BY SIMILARITY).

CC CONFLICT 42 42 A -> R (IN REF. 2).

CC CONFLICT 157 157 E -> G (IN REF. 1).

CC CONFLICT 164 164 S -> Y (IN REF. 2).

CC CONFLICT 212 212 L -> Q (IN REF. 2).

CC SEQUENCE 236 AA; 26622 MW; E7686CB9071A872A CRC64;

Query Match 41.1%; Score 414; DB 1; Length 236;
Best Local Similarity 36.2%; Pred. No. 4e-30;
Matches 84; Conservative 34; Mismatches 62; Indels 52; Gaps 3;

9 DTRALVADVGKLRKQK-
10 DREIYMKYIHYKLSRGYEMDTGDEDSAPLRAPAPGIFSPQSPESNRTPAVRDPAART 69

CC 28 -----VCGAGGEGGPAADPLHQAMRAAGDEFETRRFTSDLAQLHVTGSAQOFTQ 81
CC 70 SPRLPLVAMNAGPALSPVPPVHILTLRRADDTSRRYRDFAMQSOLHPTTAGRAT 129
CC 82 VSDLEFGGPNMGRVAFVFEAGALCAESVKNEMPELVGOVEMVAYLEFLADWHS 141
CC 130 VVEELFRDGVNMGRVAFVFEFGVMCVESVKNREMSPLVNIALMTETVLRHLFTWIDN 189
CC 142 GGAEEFTALYSGALAEARLRREGMASVRYTLGAVNLAGALVYTGAFPAK 193
CC 190 GGDPAFVELYG-----PSMRPLDFSWLSLKLTLSDAL-VGACTTGLAVLGRK 236

DB

RESULT 12
BCL2_MOUSE
ID BCL2_MOUSE STANDARD; PRT; 236 AA.
AC P10417; P10418; (Rel. 10, Created)
DT 01-MAR-1989 (Rel. 25, Last sequence update)
DT 01-APR-1993 (Rel. 41, Last annotation update)
DE Apoptosis regulator Bcl-2.
GN BCL2 OR BCL-2
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
ON NCBI_TaxID=10090;
RX SEQUENCE FROM N.A. (ISOFORMS ALPHA AND BETA).
RX STRAIN-BALB/C; TISSUE=Liver;
RX MEDLINE=87187643; PubMed=3032455;
RA Negishi M., Sillini E., Kozak C., Tsujimoto Y., Croce C.M.;
RT "Molecular analysis of mbcl-2: structure and expression of the murine
RT gene homologous to the human gene involved in follicular lymphoma.";
RT Cell 49:455-463(1987).
RN [2]
RP REVISIONS TO 221-222.
RX MEDLINE=92375724; PubMed=1508712;
RA Eguenl Y., Ewert D., Tsujimoto Y.;
RT "Isolation and characterization of the chicken bcl-2 gene: expression
RT in a variety of tissues including lymphoid and neuronal organs in
RT adult and embryo.";
RL Nucleic Acids Res. 20:4187-4192(1992).
RN [3]
RP PHOSPHORYLATION BY PKC, AND MUTAGENESIS OF SERINE RESIDUES.
RX MEDLINE=97277291; PubMed=9115213;
RA Ito T., Deng X., Carr B., May W.S. Jr.;
RT "Bcl-2 phosphorylation required for anti-apoptosis function.";
RL J. Biol. Chem. 272:11671-11673(1997).
RN [4]
RP DEPHOSPHORYLATION BY PP2A.
RX MEDLINE=99069407; PubMed=9852076;
RA Deng X., Ito T., Carr B., Mumby M., May W.S. Jr.;
RT "Reversible phosphorylation of Bcl2 following interleukin 3 or
RT bryostatin 1 is mediated by direct interaction with protein
RT phosphatase 2A*";
RL J. Biol. Chem. 273:34157-34163(1998).
CC -1- FUNCTION: Suppresses apoptosis in a variety of cell systems
CC including factor-dependent lymphohematopoietic and neural cells.
CC Regulates cell death by controlling the mitochondrial membrane
CC permeability. Appears to function in a feedback loop system with
CC caspases. Inhibits caspase activity either by preventing the
CC release of cytochrome c from the mitochondria and/or by binding to
CC the apoptosis-activating factor (APAF-1).
CC -1- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and
CC domains, and is necessary for anti-apoptotic activity (By
CC similarity). Also interacts with APAF-1 and RAIF-1.
CC -1- SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
CC membrane of the nuclear envelope and the endoplasmic reticulum.
CC -1- ALTERNATIVE PRODUCTS: 2 isoforms; alpha (shown here) and beta;
CC are produced by alternative splicing.
CC -1- TISSUE SPECIFICITY: Expressed in a variety of tissues.
CC -1- DOMAIN: The Bcl2 domain is required for anti-apoptotic activity and

CC for interaction with Raf-1.
CC -1- PPM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2
CC anti-apoptotic activity. Growth factor-stimulated phosphorylation
CC on Ser-70 by PKC is required for the anti-apoptosis activity and
CC occurs during the G2/M phase of the cell cycle. In the absence of
CC growth factors, Bcl2 appears to be phosphorylated by other protein
CC kinases such as ERKs and stress-activated kinases.
CC Dephosphorylated by protein phosphatase 2A (PP2A).
CC -1- PPM: Proteolytically cleaved by caspases during apoptosis. The
CC cleaved protein, lacking the BH4 domain, has pro-apoptotic
CC activity, causes the release of cytochrome c into the cytosol
CC promoting further caspase activity.
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL Outstation
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: L31532; AAA37282.1; JOINED.
DR EMBL: M16506; AAA37282.1; JOINED.
DR PIR: A25960; TVMSB1.
DR PIR: B25960; TVMSB1.
DR PIR: E37332; E37332.
DR HSSP: 007817; IMAZ.
DR MGD: MGI:88138; Bcl2.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR003093; BH4.
DR InterPro: IPR000712; BCL-2.
DR Pfam: PF00452; Bcl-2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00265; BH4; 1.
DR PROSITE: PS50062; BCL2_FAMILY; 1.
DR PROSITE: PS01080; BH1; 1.
DR PROSITE: PS01258; BH2; 1.
DR PROSITE: PS01259; BH3; 1.
DR PROSITE: PS01260; BH4.1; 1.
DR PROSITE: PS50063; BH4.2; 1.
DR Apoptosis: Alternative splicing; Transmembrane; Mitochondrion;
KW Phosphorylation.
FT DOMAIN 10 30 BH4.
FT DOMAIN 90 104 BH3.
FT DOMAIN 133 152 BH1.
FT DOMAIN 184 199 BH2.
FT TRANSMEM 209 230 POTENTIAL.
FT SITE 34 35 CLEAVAGE (BY CASPASES) (BY SIMILARITY).
FT MOD_RES 70 70 PHOSPHORYLATION (BY PKC).
FT VARSPPLIC 193 236 DAFVELYGPSMRPLDFSWLSIKTLISLALVGACITLGAVYL
FT SEQUENCE 236 AA; 26425 MW; AA85EF6B0766BE0A CRC64;
SQ

Query Match 41.0%; Score 413; DB 1; Length 236;
Best Local Similarity 37.5%; Pred. No. 4; 9e-30;
Matches 87; Conservative 34; Mismatches 59; Indels 52; Gaps 5;

QY 9 DTRALVADFEYGLRKQGYCGAG-----PG----- 34
DB 10 DNRREIVKVIHYKLSQRYGEMDAGDADAPLCAAPTPGIGFSQPSNMPAVHREMAAT 69
QY 35 -----EGPAADP-----LHOAMRAAGDEFEFRRTESDLAQLHTVPGSAQOFRFQ 81
DB 70 SPLRLPVATAGPALSPVPCVHLTLRRAGDDPSRRYRRDFEAMSSQLHLTFPTARGRAT 129

QY 82 VSDELFGCGNMGRLVAFVFGAALCAESVKNEMEDLVGOVEMWVAYLEFRLADIMHS 141
DB 130 VSEELFEDGVMGRIVAFEEFGVCMCEVSINREMSPLVDNIALMMTEYLNRHLHTWIDN 189
QY 142 GCAAEFTALYDGDALAEARLRREGNMSAVRYLTGAVNAGALVYTGAFPAK 193
DB 190 GGDVADELVLG-----FSMRPLDFSWLSIKTLISLAL-VGACITLGAVYGRK 236

RESULT 13
BCL2_HUMAN
ID BCL2_HUMAN STANDARD: PRT: 239 AA.
AC P10415; P10416; Q16197; Q13842.
DT 01-MAR-1989 (Rel. 10, Created)
DT 01-APR-1993 (Rel. 25, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Apoptosis regulator Bcl-2.
GN BCL2.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominiidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A. (ISOFORMS ALPHA AND BETA).
RX MEDLINE=86259760; PubMed=3523487.
RA Tsujimoto Y., Croce C.M.;
RT "Analysis of the structure, transcripts, and protein products of
RT bcl-2, the gene involved in human follicular lymphoma.";
RL Proc. Natl. Acad. Sci. U.S.A. 83:5214-5218(1986).
RN [2]
RP REVISIONS TO 96; 110 AND 237.
RX MEDLINE=92375724; PubMed=1508712.
RA Eguchi Y., Ewert D.L., Tsujimoto Y.;
RT "Isolation and characterization of the chicken bcl-2 gene: expression
RT in a variety of tissues including lymphoid and neuronal organs in
RL adult and embryo.";
RL Nucleic Acids Res. 20:4187-4192(1992).
RN [3]
RP SEQUENCE FROM N.A. (ISOFORM ALPHA).
RX MEDLINE=87002488; PubMed=2875799;
RA Cleary M.L., Smith S.D., Sklar J.;
RT "Cloning and structural analysis of cDNAs for bcl-2 and a hybrid bcl-
RT 2/immunoglobulin transcript resulting from the t(14;18)
RL translocation.";
RL Cell 47:19-28(1986).
RN [4]
RP SEQUENCE FROM N.A. (ISOFORM ALPHA).
RX MEDLINE=88196071; PubMed=2834197;
RA Seto M., Jaeger U., Hockelt R.D., Graninger W., Bennett S.,
RT "Alternative promoters and exons, somatic mutation and deregulation
RT of the Bcl-2-1g fusion gene in lymphoma.";
RL EMBO J. 7:123-131(1988).
RN [5]
RP SEQUENCE OF 1-131 FROM N.A. (ISOFORM ALPHA), AND VARIANTS NHL.
RX MEDLINE=92096610; PubMed=1339299;
RA Tanaka S., Louie D.C., Kant J.A., Reed J.C.;
RT "Frequent incidence of somatic mutations in translocated BCL2
RT oncogenes of non-Hodgkin's lymphomas.";
RL Blood 79:229-237(1992).
RN [6]
RP SUBCELLULAR LOCATION.
RX MEDLINE=91066924; PubMed=2250705;
RA Hockenbery D., Nunez G., Millman C., Schreiber R.D., Korsmeyer S.J.;
RT "Bcl-2 is an inner mitochondrial membrane protein that blocks
RT programmed cell death.";
RL Nature 348:334-336(1990).
RN [7]
RP MUTAGENESIS.
RX MEDLINE=94239528; PubMed=8183370;
RA Yin X.-M., Oliveira Z.N., Korsmeyer S.J.;
RT "BH1 and BH2 domains of Bcl-2 are required for inhibition of
RT apoptosis and heterodimerization with Bax.";

Best Local Similarity 98.4%; Pred. No. 2.4e-80;
Matches 190; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 MATPASADPTALVADFGYKLRQKGYCAGCGEGPADPLHOAMRAAGDEFETRRRT 60
Db 1 MATPASADPTALVADFGYKLRQKGYCAGCGEGPADPLHOAMRAAGDEFETRRRT 60
QY 61 FSDLAOLHVTGSAOQRFQVSDLEFGCGPNMGRVAFVFGAALCAESVKNKEMPLVG 120
Db 61 FSDLAOLHVTGSAOQRFQVSDLEFGCGPNMGRVAFVFGAALCAESVKNKEMPLVG 120
QY 121 QVQEMWVAVLETRLADWIMHSSGGMAEFYALYGDGALFEARLRREGNMAVFTVLTGAVAL 180
Db 121 QVQEMWVAVLETRLADWIMHSSGGMAEFYALYGDGALFEARLRREGNMAVFTVLTGAVAL 180
QY 181 GALVTGAFPAASK 193
Db 181 GALVTGAFPAASK 193

RESULT 2

Q9CYW5 PRELIMINARY; PRT; 178 AA.
AC Q9CYW5; 01-JUN-2001 (TREMBlrel. 17, Created)
DT 01-JUN-2001 (TREMBlrel. 17, Last sequence update)
DE 01-DEC-2001 (TREMBlrel. 19, Last annotation update)
CN BCL2-LIKE 2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Eukaryota; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
NCBI_TaxID=10090;
[1]
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6J; TISSUE=EMBRIO;
KW MEDLINE=21085660; Pubmed=11217851;
RA Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA Aikawa K., Iwama M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA Saito T., Okazaki Y., Gotohori T., Bono H., Kasukawa T., Saito R.,
RA Kadota K., Matsuda H.A., Ashburner M., Batilov S., Casavant T.,
RA Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA Schirml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA Blake J., Boffelli D., Bojunga N., Carinci P., de Bonaudo M.F.,
RA Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA Suzuki H., Toyooka K., Wang K.H., Weitz C., Whitaker C., Wilming L.,
RA Wyshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kontutski S.,
RA Hayashizaki Y.,
RT "Functional annotation of a full-length mouse cDNA collection.";
RL Nature 409:685-690(2001).
DR EMBL: AK013244; BAB28740.1; -.
DR HSSP: O07817; IMAZ.
DR MGD: MGI:108052; Bcl2l2.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR000712; Bcl_2.
DR InterPro: IPR003093; BH4.
DR Pfam: PF00452; Bcl-2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00265; BH4; 1.
DR PROSITE: PS50062; BCL2_FAMILY; 1.
DR PROSITE: PS50063; BH4_2; 1.
DR PROSITE: PS50063; BH4_2; 1.
SQ SEQUENCE 178 AA; 19147 MW; E2DAQ3F79528E9D7 CRC64;

Query Match 75.6%; Score 761; DB 11; Length 178;
Best Local Similarity 95.3%; Pred. No. 1.2e-59;
Matches 143; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

QY 1 MATPASADPTALVADFGYKLRQKGYCAGCGEGPADPLHOAMRAAGDEFETRRRT 60
Db 1 MATPASADPTALVADFGYKLRQKGYCAGCGEGPADPLHOAMRAAGDEFETRRRT 60
QY 61 FSDLAOLHVTGSAOQRFQVSDLEFGCGPNMGRVAFVFGAALCAESVKNKEMPLVG 120
Db 61 FSDLAOLHVTGSAOQRFQVSDLEFGCGPNMGRVAFVFGAALCAESVKNKEMPLVG 120
QY 121 QVQEMWVAVLETRLADWIMHSSGGMAEFYALYGDGALFEARLRREGNMAVFTVLTGAVAL 180
Db 121 QVQEMWVAVLETRLADWIMHSSGGMAEFYALYGDGALFEARLRREGNMAVFTVLTGAVAL 180

RESULT 3

Q9MYW4 PRELIMINARY; PRT; 233 AA.
AC Q9MYW4; 01-OCT-2000 (TREMBlrel. 15, Created)
DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)
DE 01-OCT-2001 (TREMBlrel. 18, Last annotation update)
CN BCL-X.
OS Oryctolagus cuniculus (Rabbit).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Eukaryota; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
NCBI_TaxID=9986;
[1]
RP SEQUENCE FROM N.A.
RA Knott J.C., Robertson L., James E.R.;
RT "Rabbit Bcl-X";
Submitted (JUL-2000) to the EMBL/Genbank/DBJ databases.
RL EMBL: AY005131; ANF88137.1; -.
DR HSSP: P53563; IAB3.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR000712; BCL_2.
DR InterPro: IPR003093; BH4.
DR Pfam: PF00452; Bcl-2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00265; BH4; 1.
DR PROSITE: PS50062; BCL2_FAMILY; 1.
DR PROSITE: PS01080; BH1; 1.
DR PROSITE: PS01258; BH2; 1.
DR PROSITE: PS01259; BH3; 1.
DR PROSITE: PS01260; BH4_1; 1.
DR PROSITE: PS50063; BH4_2; 1.
SQ SEQUENCE 233 AA; 25986 MW; 12F0F30344D53F93 CRC64;

Query Match 43.7%; Score 440.5; DB 6; Length 233;
Best Local Similarity 42.0%; Pred. No. 3.5e-31;
Matches 94; Conservative 22; Mismatches 37; Indels 51; Gaps 4;

QY 11 RALVADFGYKLRQKGYC-----GAG-----PGECPAA 39
Db 6 RELVADFLSYKLSQKGYCSDVDEENTTEAPEGCPMEETPSAINGNRAHNPADSPAV 65
QY 40 D-----PLHOAMRAAGDEFETRRRTFSDLAOLHVTGSAOQRFQ 81
Db 66 NCATGSSSLDAREVIMTAVKQALREAGDEFELRYRAFSDLTSQLHTTPTAVOSPEQ 125
QY 82 VSDLEFGCGPNMGRVAFVFGAALCAESVKNKEMPLVGQVQEMWVAVLETRLADWIMHSS 141
Db 126 VVNELEFRDGVNMGRVAFVFGAALCAESVKNKEMPLVSRISAMATYVINDHLEPWOEN 185
QY 142 GCAAEFTALYGDGALFEARLR--GNMAVFTVLTGAVALGAL 183
Db 186 GGMDFVELLGNNAAEASRKQGERFNKRWLTGMYTAGVYLGLSL 229


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RESULT 4
ID 035844 PRELIMINARY: PRT: 233 AA.
AC 035844:
DT 01-JAN-1998 (TREMBlrel. 05, Created)
DT 01-JAN-1998 (TREMBlrel. 05, Last sequence update)
DT 01-DEC-2001 (TREMBlrel. 19, Last annotation update)
DE BCL-XL.
GN BCL2L.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN (1)
RP SEQUENCE FROM N.A.
RC STRAIN=B6/CBA; TISSUE=THYMUS;
RX MEDLINE=98051053; PubMed=9390687;
RA Yang X.-F., Weber G.F., Cantor H.;
RT "A novel Bcl-x isoform connected to the T cell receptor regulates
RT apoptosis in T cells.";
RL EMBL: U51278; AAC53459.1; -
DR HSSP: P53563; IAF3.
DR MGD: MGI:88139; BCL2L.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR00712; BCL_2.
DR InterPro: IPR003093; BH4.
DR Pfam: PF00452; Bcl-2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00265; BH4; 1.
DR PROSITE: PS50062; BCL2_FAMILY; 1.
DR PROSITE: PS01080; BH1; 1.
DR PROSITE: PS01258; BH2; 1.
DR PROSITE: PS01259; BH3; 1.
DR PROSITE: PS01260; BH4_1; 1.
DR PROSITE: PS01260; BH4_2; 1.
DR PROSITE: PS50063; BH4_2; 1.
SQ SEQUENCE 233 AA; 26033 MW; 3083F2D8327E072E CRC64;

Query Match 43.2%; Score 435.5; DB 11; Length 233;
Best Local Similarity 41.8%; Pred. No. 9,6e-31;
Matches 94; Conservative 22; Mismatches 56; Indels 53; Gaps 4;

OY 11 RALVADFGYKLRQKGY-----Y 28
DB 6 RELVDFELSYKLSQKGYSSQSFSDVEENRTPEARETEARETPSAINGNPSMHLADSPAY 65
OY 29 CGAGPEGEPAD-----PLHQAMRAAGDEFETRRFRPSDIAOLHVPGSAQOQFT 80
DB 66 NGA-TGHSSSLDAREVYIPMAAVKQALREAGDEFEELRRRAFSDLTSQHLITPGTAQSF 124
OY 81 QVSDLEFPGGPNMGRLVAFFVGALCAESYKMEPELVGQVEMVAYLETRLADIHS 140
DB 125 QVNNELFRDGVNMGRIYAFVFGALCVESYDKEMQVLSRIASWATYLDNHLPEWIOE 184
OY 141 SGGMAEFALYGDGALFEARLRLE--GNWASRYVLTGAVAGAL 183
DB 185 NGGMDTFVLDYGNNAAEARKKGEGRNRFLLGTMTAGVLLGSL 229

RESULT 5
O9N1A2 PRELIMINARY: PRT: 233 AA.
AC 09N1A2:
DT 01-OCT-2000 (TREMBlrel. 15, Created)
DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)
DT 01-DEC-2001 (TREMBlrel. 19, Last annotation update)
DE ANTI-APOPTOTIC REGULATOR BCL-XL.
GN BCL-XL.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suidae; Suidae; Sus.

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OX NCBI_TaxID=9823;
RN (1)
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RA Lee T.L., Canty J.M.;
RT "PCR Cloning of a Porcine bcl-xl cDNA from Heart.";
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF216205; AAF33212.1; -
DR HSSP: 007817; IMAZ.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR00712; BCL_2.
DR InterPro: IPR003093; BH4.
DR Pfam: PF00452; Bcl-2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00265; BH4; 1.
DR PROSITE: PS50062; BCL2_FAMILY; 1.
DR PROSITE: PS01080; BH1; 1.
DR PROSITE: PS01258; BH2; 1.
DR PROSITE: PS01259; BH3; 1.
DR PROSITE: PS01260; BH4_1; 1.
DR PROSITE: PS01260; BH4_2; 1.
DR PROSITE: PS50063; BH4_2; 1.
SQ SEQUENCE 233 AA; 26047 MW; 2FA312818B25E17D CRC64;

Query Match 42.9%; Score 431.5; DB 6; Length 233;
Best Local Similarity 41.8%; Pred. No. 2,2e-30;
Matches 94; Conservative 21; Mismatches 57; Indels 53; Gaps 4;

OY 11 RALVADFGYKLRQKGY-----Y 28
DB 6 RELVDFELSYKLSQKGYSSQSFSDVEENRTPEARETEARETPSAINGNPSMHLADSPAY 65
OY 29 CGAGPEGEPAD-----PLHQAMRAAGDEFETRRFRPSDIAOLHVPGSAQOQFT 80
DB 66 NGA-TGHSSSLDAREVYIPMAAVKQALREAGDEFEELRRRAFSDLTSQHLITPGTAQSF 124
OY 81 QVSDLEFPGGPNMGRLVAFFVGALCAESYKMEPELVGQVEMVAYLETRLADIHS 140
DB 125 QVNNELFRDGVNMGRIYAFVFGALCVESYDKEMQVLSRIASWATYLDNHLPEWIOE 184
OY 141 SGGMAEFALYGDGALFEARLRLE--GNWASRYVLTGAVAGAL 183
DB 185 NGGMDTFVLDYGNNAAEARKKGEGRNRFLLGTMTAGVLLGSL 229

RESULT 6
O9M2S7 PRELIMINARY: PRT: 233 AA.
AC 09M2S7:
DT 01-OCT-2000 (TREMBlrel. 15, Created)
DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)
DT 01-DEC-2001 (TREMBlrel. 19, Last annotation update)
DE BCL-X LONG PROTEIN.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN (1)
RP SEQUENCE FROM N.A.
RC TISSUE=OVARY;
RA Murray J.F., Dong Y.B., Leigh A.J., Scaramuzzi R.J., Carter N.D.;
RT "Bcl-x in the sheep ovary.";
RL Submitted (JUL-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF164517; AAF89532.1; -
DR HSSP: P53563; IAF3.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR00712; BCL_2.
DR InterPro: IPR003093; BH4.
DR Pfam: PF00452; Bcl-2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.

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RT apoptosis during embryogenesis." ;
 RL Mol. Endocrinol. 14:1038-1052(2000).
 DR EMBL: AF088904; AAC72232.1; -
 DR HSSP: P53563; IAF3.
 DR MGD: MGI:88139; Bcl2L.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR000712; Bcl_2.
 DR InterPro: IPR003093; Bcl_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 FT NON_TER 188
 SQ SEQUENCE 188 AA; 21126 MW; 4E62F8356D248E52 CRC64;

Query Match 37.2%; Score 374.5; DB 11; Length 188;
 Best Local Similarity 42.9%; Pred. No. 1.8e-25;
 Matches 79; Conservative 16; Mismatches 38; Indels 51; Gaps 3;

QY 11 RALVADFGYKLRQKGY-----V 28
 DB 6 RELVVDLFLSYKLSQKGYSWQSFSDVEENRTEAPEETEARETTPSAINGNPSWHLADSPAV 65
 QY 29 CGAGPGECPAD-----PLHQAMRAAGDEFEFRFRFTPSDLAQLHTPGSAOQRT 80
 DB 66 NGA-TGSSSIDAREVIPMAAVKQALREAGDEFELRYRAFSDLTSLHTPGTAQOSFE 124
 QY 81 QVSDLEFGGPNMGRVAFVFGALCAESVKNKEMEPVGOVEMWVAYLETFLADWHS 140
 DT 01-MAR-2001 (Tremblrel. 16, Created)
 DT 01-MAR-2001 (Tremblrel. 16, last sequence update)
 DT 01-DEC-2001 (Tremblrel. 19, last annotation update)
 DB 125 QVYNLEFRGCVNMGRIYAFVFSFGALCVESVDKEMQVLSRIASWATYTLNDHLEPWIOE 184
 QY 141 SGGW 144
 DB 185 NGGW 188

RESULT 13
 ID 035843 PRELIMINARY; PRT; 235 AA.
 AC 035843;
 DT 01-JAN-1998 (Tremblrel. 05, Created)
 DT 01-JAN-1998 (Tremblrel. 05, last sequence update)
 DT 01-DEC-2001 (Tremblrel. 19, last annotation update)
 DE BCL-X-GAMMA.
 GN BCL2L.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 NC NCBL_TaxID=10090;
 RN 11
 RP SEQUENCE FROM N.A.
 RC STRAIN=B6/CBA; TISSUE=THYMUS;
 RX MEDLINE=98051053; PubMed=9390687;
 RA Yang X.-F., Weber G.F., Cantor H.;
 RT "A novel Bcl-x isoform connected to the T cell receptor regulates
 RT apoptosis in T cells."
 RL Immunity 7:629-639(1997).
 DR EMBL: U51277; AAC53458.1; -
 DR HSSP: P53563; IAF3.
 DR MGD: MGI:88139; Bcl2L.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR000712; Bcl_2.
 DR InterPro: IPR003093; Bcl_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.

DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 SQ SEQUENCE 235 AA; 26122 MW; 649D914C2D5378F6 CRC64;

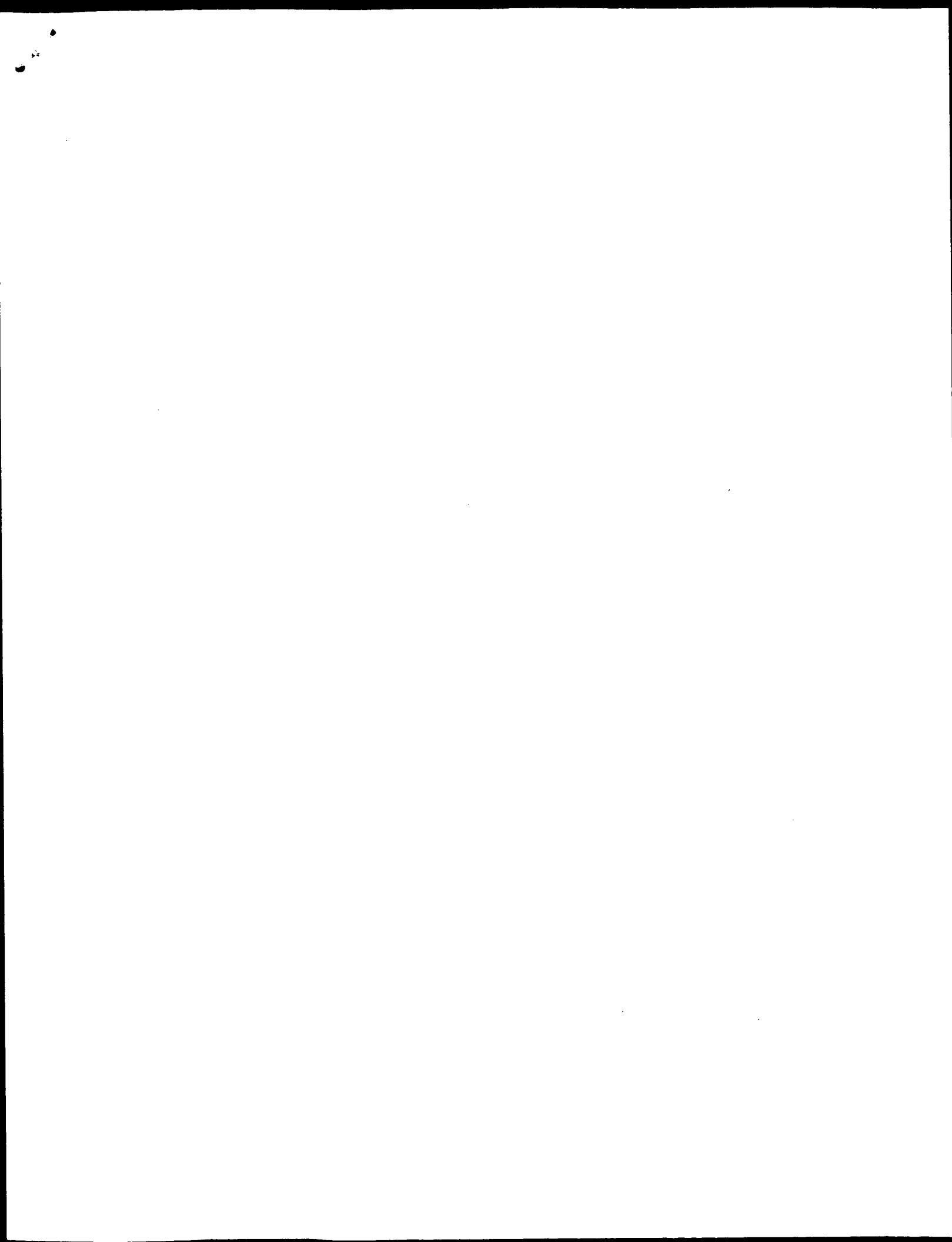
Query Match 37.2%; Score 374.5; DB 11; Length 235;
 Best Local Similarity 42.9%; Pred. No. 2.4e-25;
 Matches 79; Conservative 16; Mismatches 38; Indels 51; Gaps 3;

QY 11 RALVADFGYKLRQKGY-----V 28
 DB 6 RELVVDLFLSYKLSQKGYSWQSFSDVEENRTEAPEETEARETTPSAINGNPSWHLADSPAV 65
 QY 29 CGAGPGECPAD-----PLHQAMRAAGDEFEFRFRFTPSDLAQLHTPGSAOQRT 80
 DB 66 NGA-TGSSSIDAREVIPMAAVKQALREAGDEFELRYRAFSDLTSLHTPGTAQOSFE 124
 QY 81 QVSDLEFGGPNMGRVAFVFGALCAESVKNKEMEPVGOVEMWVAYLETFLADWHS 140
 DT 01-MAR-2001 (Tremblrel. 16, Created)
 DT 01-MAR-2001 (Tremblrel. 16, last sequence update)
 DT 01-DEC-2001 (Tremblrel. 19, last annotation update)
 DB 125 QVYNLEFRGCVNMGRIYAFVFSFGALCVESVDKEMQVLSRIASWATYTLNDHLEPWIOE 184
 QY 141 SGGW 144
 DB 185 NGGW 188

RESULT 14
 ID 09H1R6 PRELIMINARY; PRT; 188 AA.
 AC 09H1R6;
 DT 01-MAR-2001 (Tremblrel. 16, Created)
 DT 01-MAR-2001 (Tremblrel. 16, last sequence update)
 DT 01-DEC-2001 (Tremblrel. 19, last annotation update)
 DE BA243J16.1.1 (BCL2-Like 1 (ISOFORM 1)) (FRAGMENT).
 GN BCL2L.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 NC NCBL_TaxID=9606;
 RN 11
 RP SEQUENCE FROM N.A.
 RA Brown A.;
 RL Submitted (MAY-2001) to the EMBL/GenBank/DBJ databases.
 DR EMBL: AL160175; CAC10003.1; -
 DR HSSP: 007817; 11XL
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR000712; Bcl_2.
 DR InterPro: IPR003093; Bcl_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 FT NON_TER 188
 SQ SEQUENCE 188 AA; 21029 MW; 7074B6095145C324 CRC64;

Query Match 37.1%; Score 373.5; DB 4; Length 188;
 Best Local Similarity 42.9%; Pred. No. 2.2e-25;
 Matches 79; Conservative 16; Mismatches 38; Indels 51; Gaps 3;

QY 11 RALVADFGYKLRQKGY-----V 28
 DB 6 RELVVDLFLSYKLSQKGYSWQSFSDVEENRTEAPEETEARETTPSAINGNPSWHLADSPAV 65
 QY 29 CGAGPGECPAD-----PLHQAMRAAGDEFEFRFRFTPSDLAQLHTPGSAOQRT 80
 DB 66 NGA-TGSSSIDAREVIPMAAVKQALREAGDEFELRYRAFSDLTSLHTPGTAQOSFE 124



GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 10, 2002, 10:25:47 ; Search time 55.16 Seconds
(without alignments)
388.637 Million cell updates/sec

Title: US-09-155-327E-9

Perfect score: 1009

Sequence: 1 MATPASTPDRALVADPVG.....LTGAVLALVTCAPFAK 193

Scoring table:

BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 747574 seqs, 111073796 residues

Total number of hits satisfying chosen parameters: 747574

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

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1: A_Geneseq_032802.*
2: /SIDSL/gcgdata/hold-geneseq/geneseq-emb1/AA1980.DAT.*
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21: /SIDSL/gcgdata/hold-geneseq/geneseq-emb1/AA1999.DAT.*
22: /SIDSL/gcgdata/hold-geneseq/geneseq-emb1/AA2000.DAT.*
23: /SIDSL/gcgdata/hold-geneseq/geneseq-emb1/AA2001.DAT.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	1006	99.7	193	20	AAV05531
2	1002	99.3	193	20	AAW61391
3	1002	99.3	193	20	AAW67391
4	997	98.8	192	20	AAW97393
5	997	98.8	193	20	AAV05530
6	992	98.3	193	20	AAW61392
7	992	98.3	193	20	AAW97392
8	990	98.1	193	18	AAW36047
9	990	98.1	193	20	AAV05532
10	987	97.8	192	20	AAW97394
11	970.5	96.2	192	20	AAV05533

12	879	87.1	168	18	AAW36048
13	756	74.9	365	19	AAW59884
14	429.5	42.6	411	22	AAU00219
15	425.5	42.2	233	22	AAW73307
16	424.5	42.1	233	16	AAW68887
17	424.5	42.1	233	17	AAW05821
18	424.5	42.1	233	18	AAW31530
19	424.5	42.1	233	21	AAW83223
20	424.5	42.1	233	21	AAV69969
21	424.5	42.1	233	22	AAW64262
22	424.5	42.1	233	22	AAW50538
23	424.5	42.1	233	22	AAW47515
24	422	41.8	225	18	AAW19396
25	421.5	41.8	233	22	AAW73304
26	412.5	40.9	239	22	AAW64037
27	409	40.5	236	22	AAW35131
28	408.5	40.5	239	20	AAW87810
29	408.5	40.5	239	22	AAW74127
30	408.5	40.5	239	22	AAW35130
31	406.5	40.3	239	9	AAW80987
32	406.5	40.3	239	14	AAW42312
33	406.5	40.3	239	16	AAW70331
34	406.5	40.3	239	16	AAW71404
35	406.5	40.3	239	19	AAW40217
36	406.5	40.3	239	20	AAW87812
37	406.5	40.3	239	22	AAW08573
38	406.5	40.3	239	22	AAW64035
39	406.5	40.3	239	22	AAW64036
40	406.5	40.3	239	22	AAW74129
41	406.5	40.3	239	22	AAW48388
42	406.5	40.3	239	22	AAW50537
43	406.5	40.3	272	19	AAW21120
44	406.5	40.3	485	22	AAU00222
45	404	40.0	232	17	AAW01019

ALIGNMENTS

RESULT 1
ID AAY05531 standard; Protein; 193 AA.
AC AAY05531;
XX
XX
XX 05-JUL-1999 (first entry)
XX
XX Mouse Bcl-w protein essential for spermatogenesis.
XX
XX Spermatogenesis; Bcl-3; Bcl-2; mouse; fertility; infertility;
XX animal model.
XX
XX Mus sp.
XX
XX WO9913710-A1.
XX
XX 25-MAR-1999.
XX
XX 16-SEP-1998; 98WO-AU00764.
XX
XX 16-SEP-1997; 97AU-0009228.
XX
XX
XX (HALL-) HALL INST MEDICAL RES WALTER & ELIZA.
XX
XX Adams J, Cory S, Gibson L, Koentgen F, Print C;
XX WPI; 1999-243890/20.
XX N-PSDB; AAX25133.
XX
XX An animal model exhibiting reduced levels of a Bcl-w protein and/or
XX protein associated with Bcl-w
XX
XX Claim 2; Page 35; 52pp; English.

Mouse bcl-w protei
Amino acid sequenc
Bcl-XL-DTR apoptos
Rat wild-type Bcl-
Human thymus BCL-X
Bcl-XL protein. H
Human anti-apoptot
Bcl-x polypeptide.
Human Bcl-XL prote
Human Bcl-XL prote
Protein encoded by
"Deputy1" (RTM)-1
Mutant rat Bcl-XL
Human Bcl-2 protei
Murine Bcl-2. Mus
A human Bcl-2 prot
Human bcl-2. Homo
Human Bcl-2. Homo
Sequence of bcl-2-
Bcl-2 oncogene pro
Human bcl-2 protei
Human bcl-2 alpha
Human bcl-2. Homo
A human Bcl-2-alph
Human Bcl-2 protei
Human Bcl-2 protei
Human Bcl-2 protei
Human Bcl-2 protei
Human Bcl-2 protei
Human bcl2 proto-o
Lfn-Bcl-XL apoptos
Apoptosis-blockin

XX The present sequence is mouse Bcl-w, a pro-survival member of the
 CC Bcl-2 family which is widely expressed and which is essential for
 CC spermatogenesis. The invention relates generally to a method of
 CC treatment and to an animal model for the identification of
 CC molecules and genetic sequences useful for inducing or reducing
 CC fertility of male animals. Methods are provided for the treatment
 CC of infertility, or for reducing fertility, by modulating
 CC spermatogenesis. An animal model carries a mutation is at least
 CC one allele of the human or murine bcl-w gene (see AAX25132-35) or in
 CC a gene associated with bcl-w. Such animals have disorganised
 CC seminiferous tubules and are substantially infertile, but possess no
 CC other major abnormalities as determined by histological examination.
 CC They can be used to screen for therapeutic molecules including
 CC genetic sequences capable of inducing, enhancing or otherwise
 CC facilitating spermatogenesis in animals, or which can induce
 CC infertility.
 CC
 SQ Sequence 193 AA;

Query Match 99.7%; Score 1006; DB 20; Length 193;
 Best Local Similarity 99.5%; Pred. No. 5.5e-102;
 Matches 192; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 MATPASTPDTALVADVFVGYRLRQKGYVCGAGPEGPADPLHOAMRAAGDEFETRFRRT 60
 Db 1 matpastpdtalvadfygylrkqgyvcgagpgspadplhgamraagdefetrfrt 60
 QY 61 FSDLAQLHVTGSAOQRTQVSDELFOGPGPMNGRLVAFVFGALCAESVNMKEPIVYG 120
 Db 61 fsdlaqlhvtgpgsaqgrftqvsdelifgpgpmngriavftvfgaalcaesvnmkempivg 120
 QY 121 QVQDMWVAYLETRLADWTHSSGMAEFETALYGDGALEEARRLREGNMASVRYTLTGAVAL 180
 Db 121 qvqdmwvayletrladwhssgmaefetalygdgaaleearrlregnmavsrvtltgaval 180
 QY 181 GALVTVGAFPAASK 193
 Db 181 galvtvgafpask 193

RESULT 2
 ID AAM61391
 XX AAM61391 standard; Protein; 193 AA.

AC AAM61391:
 XX
 DT 02-OCT-1998 (first entry)
 XX
 DE Rat bcl-y protein.
 XX
 KW bcl-y; bcl-2; cell death pathway; apoptotic; apoptosis; rat.
 XX
 OS Rattus sp.
 XX
 PN US5789201-A.
 XX
 PD 04-AUG-1998.
 XX
 PF 11-FEB-1997; 97US-0798897.
 XX
 PR 23-FEB-1996; 96US-0012201.
 PR 11-FEB-1997; 97US-0798897.
 XX
 PA (COCE-) COCENSYS INC.
 XX
 PI Guastella J;
 XX
 DR WPI; 1998-446079/38.
 DR N-PSDB; V283333.
 XX
 PT Nucleic acids encoding B-cell lymphoma-Y protein - useful for

PT producing recombinant protein for use in treating uncontrolled cell
 PT growth e.g. cancers

XX Example; Fig 3a; 27pp; English.

XX The mammalian bcl-y protein is a member of the bcl-2 family, components
 CC in the cell death pathway. The bcl-2 family have both apoptotic activity
 CC and the apoptosis blocking activity. bcl-y falls in the apoptosis
 CC activity category. The recombinant protein may be used to prevent
 CC uncontrolled cell growth, either by its direct administration to
 CC recombinant genetic constructs to increase its expression in vivo. Also,
 CC antisense constructs can be used in disorders where prevention of cell
 CC death is desired.
 CC
 SQ Sequence 193 AA;

Query Match 99.3%; Score 1002; DB 19; Length 193;
 Best Local Similarity 99.0%; Pred. No. 1.5e-101;
 Matches 191; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MATPASTPDTALVADVFVGYRLRQKGYVCGAGPEGPADPLHOAMRAAGDEFETRFRRT 60
 Db 1 matpastpdtalvadfygylrkqgyvcgagpgspadplhgamraagdefetrfrt 60
 QY 61 FSDLAQLHVTGSAOQRTQVSDELFOGPGPMNGRLVAFVFGALCAESVNMKEPIVYG 120
 Db 61 fsdlaqlhvtgpgsaqgrftqvsdelifgpgpmngriavftvfgaalcaesvnmkempivg 120
 QY 121 QVQDMWVAYLETRLADWTHSSGMAEFETALYGDGALEEARRLREGNMASVRYTLTGAVAL 180
 Db 121 qvqdmwvayletrladwhssgmaefetalygdgaaleearrlregnmavsrvtltgaval 180
 QY 181 GALVTVGAFPAASK 193
 Db 181 galvtvgafpask 193

RESULT 3
 ID AAM97391
 XX AAM97391 standard; Protein; 193 AA.

AC AAM97391:
 XX
 DT 20-MAY-1999 (first entry)
 XX
 DE The rat bcl-y protein.

KW Rat bcl-y protein; Rbcl-y; human bcl-y protein; Hbcl-y; bcl-2 homologue;
 KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;
 KW head trauma; Alzheimer's disease; neural; muscular degenerative disease;
 KW multiple sclerosis; myocardial infarction; vitally induced cell death;
 KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;
 KW premature cell death; cell death stimulator; prolonged cell life span;
 KW Kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;
 KW parasite.

XX Rattus sp.
 OS
 XX
 PN US5883229-A.
 XX
 PD 16-MAR-1999.
 XX
 PF 25-NOV-1997; 97US-0978523.
 XX
 PR 23-FEB-1996; 96US-0012201.
 PR 11-FEB-1997; 97US-0798897.
 PR 25-NOV-1997; 97US-0978523.
 XX
 PA (COCE-) COCENSYS INC.
 XX
 PI Guastella J;
 XX

DR WPI: 1999-214150/18.
 DR N-PSDB: AAX15945.
 XX
 XX Novel bcl-Y homologues of the rat and human bcl-2 protein - useful
 PT for modulating programmed cell death
 PS Disclosure: Columns 15-18; 26pp; English.
 XX
 XX The present sequence represents rat bcl-Y protein (Rbcl-Y). The
 CC specification also describes human bcl-Y protein (Hbcl-Y). Rbcl-Y and
 CC Hbcl-Y are homologues of the bcl-2 protein thought to be involved in
 CC programmed cell death (apoptosis and necrosis). Rbcl-Y and Hbcl-Y
 CC proteins may be used to treat conditions associated with a disruption of
 CC the cell death pathway. If they act as cell death inhibitors, they may be
 CC used in therapies to treat subjects suffering from: strokes, head trauma,
 CC Alzheimer's disease, neural and muscular degenerative diseases
 CC (especially multiple sclerosis), myocardial infarction, vitally induced
 CC cell death, aging, spinal cord injuries and amyotrophic lateral
 CC sclerosis- conditions where cells under go premature cell death as a
 CC result of triggers which may or may not be apparent. They may also be
 CC used in this way to develop cell lines which remain viable in culture for
 CC an extended period. In contrast, if they act as cell death stimulators,
 CC Rbcl-Y and Hbcl-Y may be used to treat conditions associated with
 CC prolonged cell life span such as cancer (especially kaposi's sarcoma and
 CC lung cancer) and auto/hyperimmune diseases. They may also be used to
 CC cause cell death in, and hence control, parasites.
 CC
 XX Sequence 193 AA:
 SQ
 Query Match 99.3%; Score 1002; DB 20; Length 193;
 Best Local Similarity 99.0%; Pred. No. 1.5e-101;
 Matches 191; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
 QY 1 MATPASTPDRFALVADVFVGYRLRQKGYVCGAGPEGPAADPLHQAMRAAGDEFETRRRTT 60
 Db 1 matpastpdralfadvdfvgykrlrqkgyvcagppegpaadplhqamaaagdefetrrrtt 60
 QY 61 FSDLAQLHTVPGSAOQRFQVSDLEFQGGPNMGRVAFVFGAALCAESVNMKEPVLVG 120
 Db 61 fsdlaaqlhvtvpgsaqgrfvtqsdellfqqgpnwgrlvaifvfgaalcaesvnmkempylvg 120
 QY 121 VQDMWVAVYLETSLADWVHSSGWAEEFTALYGDALBEARLRRCGNMNASVRYTLTGAVALG 180
 Db 121 vqdmwvavylettrladwvhssgwaefaltalgdalsearlrregnwasvrytltgavall 180
 QY 181 GALVTGAEFFASK 193
 Db 181 galvtvgaefask 193
 RESULT 4
 ID AAW97393 standard; Protein: 192 AA.
 XX
 XX AAW97393:
 XX 20-MAY-1999 (first entry)
 DE Protein sequence of the specification.
 XX
 XX Rat bcl-Y protein; Rbcl-Y; human bcl-Y protein; Hbcl-Y; bcl-2 homologue;
 KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;
 KW head trauma; Alzheimer's Disease; neural; muscular degenerative disease;
 KW multiple sclerosis; myocardial infarction; vitally induced cell death;
 KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;
 KW premature cell death; cell death stimulator; prolonged cell life span;
 KW Kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;
 KW parasite.
 XX
 XX Unidentified.
 OS
 XX
 XX US5863229-A.
 PN

XX
 PD 16-MAR-1999.
 XX
 XX 25-NOV-1997; 97US-0978523.
 PE
 XX 23-FEB-1996; 96US-0012201.
 PR 11-FEB-1997; 97US-0798897.
 PR 25-NOV-1997; 97US-0978523.
 XX
 XX (COCF-) COCENSYS INC.
 PA
 XX Guastella J;
 PI
 XX WPI: 1999-214150/18.
 DR
 XX Novel bcl-Y homologues of the rat and human bcl-2 protein - useful
 PT for modulating programmed cell death
 PS Disclosure: Columns 19-20; 26pp; English.
 XX
 XX The specification describes rat bcl-Y protein (Rbcl-Y) and human bcl-Y
 CC protein (Hbcl-Y). Rbcl-Y and Hbcl-Y are homologues of the bcl-2 protein
 CC thought to be involved in programmed cell death (apoptosis and necrosis).
 CC Rbcl-Y and Hbcl-Y proteins may be used to treat conditions associated
 CC with a disruption of the cell death pathway. If they act as cell death
 CC inhibitors, they may be used in therapies to treat subjects suffering
 CC from: strokes, head trauma, Alzheimer's Disease, neural and muscular
 CC degenerative diseases (especially multiple sclerosis), myocardial
 CC infarction, vitally induced cell death, aging, spinal cord injuries and
 CC amyotrophic lateral sclerosis- conditions where cells under go premature
 CC cell death as a result of triggers which may or may not be apparent.
 CC They may also be used in this way to develop cell lines which remain
 CC viable in culture for an extended period. In contrast, if they act as
 CC cell death stimulators, Rbcl-Y and Hbcl-Y may be used to treat
 CC conditions associated with prolonged cell life span such as cancer
 CC (especially kaposi's sarcoma and lung cancer) and auto/hyperimmune
 CC diseases. They may also be used to cause cell death in, and hence
 CC control, parasites.
 CC
 XX Sequence 192 AA:
 SQ
 Query Match 98.8%; Score 997; DB 20; Length 192;
 Best Local Similarity 99.0%; Pred. No. 5.3e-101;
 Matches 190; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
 QY 2 ATPASTPDRFALVADVFVGYRLRQKGYVCGAGPEGPAADPLHQAMRAAGDEFETRRRTT 61
 Db 1 atpastpdralfadvdfvgykrlrqkgyvcagppegpaadplhqamaaagdefetrrrtf 60
 QY 62 SDIAQLHTVPGSAOQRFQVSDLEFQGGPNMGRVAFVFGAALCAESVNMKEPVLVG 121
 Db 61 sdlaaqlhvtvpgsaqgrfvtqsdellfqqgpnwgrlvaifvfgaalcaesvnmkempylvg 120
 QY 122 VQDMWVAVYLETSLADWVHSSGWAEEFTALYGDALBEARLRRCGNMNASVRYTLTGAVALG 181
 Db 121 vqdmwvavylettrladwvhssgwaefaltalgdalsearlrregnwasvrytltgavall 180
 QY 182 ALVTGAEFFASK 193
 Db 181 alvtvgaefask 192
 RESULT 5
 ID AAY05530 standard; Protein: 193 AA.
 XX
 XX AAY05530:
 XX 05-JUL-1999 (first entry)
 DE Human Bcl-w protein essential for spermatogenesis.
 XX
 XX

[illegible]

KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;
 KW head trauma; Alzheimer's Disease; neural; muscular degenerative disease;
 KW multiple sclerosis; myocardial infarction; vitally induced cell death;
 KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;
 KW premature cell death; cell death stimulator; prolonged cell life span;
 KW Kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;
 KW parasite.

OS Homo sapiens.

PN US5883229-A.

PD 16-MAR-1999.

PF 25-NOV-1997; 97US-0978523.

PR 23-FEB-1996; 96US-0012201.

PR 11-FEB-1997; 97US-0798897.

PR 25-NOV-1997; 97US-0978523.

XX (COCE-) COCENSTYS INC.

PA Guastella J;

PI WPI: 1999-214150/18.

DR N-PSDB; AAX15946.

PT Novel bcl-y homologues of the rat and human bcl-2 protein - useful
 for modulating programmed cell death

PS Claim 1; Columns 17-18; 26pp; English.

XX The present sequence represents human bcl-y protein (Hbcl-y). The
 CC specification also describes rat bcl-y protein (Rbcl-y). Rbcl-y and
 CC Hbcl-y are homologues of the bcl-2 protein thought to be involved in
 CC programmed cell death (apoptosis and necrosis). Rbcl-y and Hbcl-y
 CC proteins may be used to treat conditions associated with a disruption of
 CC the cell death pathway. If they act as cell death inhibitors, they may be
 CC used in therapies to treat subjects suffering from: strokes, head trauma,
 CC Alzheimer's Disease, neural and muscular degenerative diseases
 CC (especially multiple sclerosis), myocardial infarction, vitally induced
 CC cell death, aging, spinal cord injuries and amyotrophic lateral
 CC sclerosis- conditions where cells under go premature cell death as a
 CC result of triggers which may or may not be apparent. They may also be
 CC used in this way to develop cell lines which remain viable in culture for
 CC an extended period. In contrast, if they act as cell death stimulators,
 CC Rbcl-y and Hbcl-y may be used to treat conditions associated with
 CC prolonged cell life span such as cancer (especially Kaposi's sarcoma and
 CC lung cancer) and auto/hyperimmune diseases. They may also be used to
 CC cause cell death in, and hence control, parasites.

XX Sequence 193 AA;

XX Sequence 193 AA;

Query Match 98.3%; Score 992; DB 20; Length 193;

Best Local Similarity 97.9%; Pred. No. 1.9e-100;

Matches 189; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 MATPASTPPTRALVADPVGVRRLKQGYVCGAGGEGPAPDPLHQAMRAAGDEPFRFRRT 60
 Db 1 matpasapdtraiivadfvgyklrqkyvcgagpgepaadplhqamaaagdefetrfrt 60
 QY 61 FSDLAQAHVTPGSAOORFTQVSDLEFGGPNMGRVAFVFGAALCAESVKNKEMPLVG 120
 Db 61 fsdlaaqahvtpgsaqgrftqvsdelifggnpmgrlvalifgaalcaesvknkemplyg 120
 QY 121 QVQDMWVAYLETRLADWHSWGMAEFRTALYGDGALBEARLRREGNMAVSRVTLGAVAL 180
 Db 121 qvgewmwayletrladwihssgwaefrtalygdgaleearlrregnmasvrvtlgaval 180
 QY 181 GALVTGAFPAK 193
 Db 181 galvtvgafpask 193

RESULT 8

AAW36047

ID AAW36047 standard; Protein; 193 AA.

AC AAW36047;

DT 22-APR-1998 (first entry)

DE Human bcl-w protein.

XX Bcl-w; apoptosis; bcl-2; cell survival; treatment; therapy; cancer;

XX diagnosis; degenerative disease.

OS Homo sapiens.

PN W09735971-A1.

PD 02-OCT-1997.

PF 27-MAR-1997; 97WO-AU00199.

PR 27-MAR-1996; 96AU-0008965.

XX (AMRA-) AMRAD OPERATIONS PTY LTD.

PA Adams JM, Cory S, Gibson LM, Holmgren SP;

PI WPI: 1997-489635/45.

DR N-PSDB; AAT96577.

PT Nucleic acid encoding apoptosis related gene bcl-w - used to induce
 or inhibit cell survival, e.g. for treatment of cancer and
 degenerative diseases

PS Claim 6; Page 48; 86pp; English.

XX This sequence represents a novel human protein, bcl-w, encoded by the
 CC bcl-2 gene family and extracted from an adult brain library. This gene
 CC promotes cell survival, so its modulation is useful in treatment of
 CC cancer or auto-immune diseases, degenerative diseases (e.g. stroke,
 CC Alzheimer's disease, myocardial infarct, muscular degeneration, hypoxia,
 CC ischaemia, human immunodeficiency virus infection or in cell transplants.
 CC Up-regulation of the gene can also be used to modify cell lines cultured
 CC in vivo, e.g. to develop new lines, to facilitate isolation of hybridomas
 CC and to increase survival of primary explants during genetic modification.
 CC It can be used to produce recombinant Bcl-w for therapy, diagnosis,
 CC antibody production or screening of potential modulators.

XX Sequence 193 AA;

XX Sequence 193 AA;

Query Match 98.1%; Score 990; DB 18; Length 193;

Best Local Similarity 97.4%; Pred. No. 3.1e-100;

Matches 188; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 1 MATPASTPPTRALVADPVGVRRLKQGYVCGAGGEGPAPDPLHQAMRAAGDEPFRFRRT 60
 Db 1 matpasapdtraiivadfvgyklrqkyvcgagpgepaadplhqamaaagdefetrfrt 60
 QY 61 FSDLAQAHVTPGSAOORFTQVSDLEFGGPNMGRVAFVFGAALCAESVKNKEMPLVG 120
 Db 61 fsdlaaqahvtpgsaqgrftqvsdelifggnpmgrlvalifgaalcaesvknkemplyg 120
 QY 121 QVQDMWVAYLETRLADWHSWGMAEFRTALYGDGALBEARLRREGNMAVSRVTLGAVAL 180
 Db 121 qvgewmwayletrladwihssgwaefrtalygdgaleearlrregnmasvrvtlgaval 180
 QY 181 GALVTGAFPAK 193
 Db 181 galvtvgafpask 193

RESULT 9
 AAY05332 standard; Protein; 193 AA.
 ID AAY05332
 AC AAY05332;
 XX
 XX
 DT 05-JUL-1999 (first entry)
 XX
 XX Human Bcl-w protein essential for spermatogenesis.
 DE Spermatogenesis; Bcl-3; Bcl-2; human; fertility; infertility;
 KW animal model.
 XX
 XX Homo sapiens.
 OS
 XX MO9913710-A1.
 PN
 XX 25-MAR-1999.
 PD
 XX 16-SEP-1998; 98WO-AU00764.
 XX
 XX 16-SEP-1997; 97AU-0009228.
 PR
 XX (HALL-) HALL INST MEDICAL RES WALTER & ELIZA.
 PA
 XX Adams J, Cory S, Gibson L, Koentgen F, Print C;
 PI WPI; 1999-243890/20.
 DR N-PSDB; AAX25134.
 DR
 XX
 XX An animal model exhibiting reduced levels of a Bcl-w protein and/or
 PT protein associated with Bcl-w
 PS Disclosure; Page 37; 52pp; English.
 XX
 XX The present sequence is described of a derivative of human Bcl-w
 CC (see also AAY05330), a pro-survival member of the Bcl-2 family that
 CC is widely expressed and which is essential for spermatogenesis.
 CC The invention relates generally to a method of treatment and to an
 CC animal model for the identification of molecules and genetic
 CC sequences useful for inducing or reducing fertility of male animals.
 CC Methods are provided for the treatment of infertility, or for
 CC reducing fertility, by modulating spermatogenesis. An animal model
 CC carries a mutation in at least one allele of the human or murine
 CC bcl-w gene (see AAX25132-35) or in a gene associated with bcl-w.
 CC Such animals have disorganised seminiferous tubules and are
 CC substantially infertile, but possess no other major abnormalities
 CC as determined by histological examination. They can be used to
 CC screen for therapeutic molecules including genetic sequences
 CC capable of inducing, enhancing or otherwise facilitating
 CC spermatogenesis in animals, or which can induce infertility.
 CC
 XX Sequence 193 AA:
 SQ
 Query Match 98.1%; Score 990; DB 20; Length 193;
 Best Local Similarity 97.4%; Pred. No. 3, 1e-100;
 Matches 188; Conservative 3; Mismatches 2; Indels 0; Gaps 0;
 QY 1 MATPASTPDRALVADFGVGRRLKRGKGYVCGAGPESPADPLHQARRAGDEFFERFRT 60
 DB 1 matpasapdralfvadfgvgrlkrqkyvgagsgpaadplhqamraagdefferrfrrt 60
 QY 61 FSLDLAQLHVTTPGSAOQRTQVSDLEFGGPMWGRVLAVFFFGAICAESVKNKEPLVG 120
 DB 61 fslslaqlhvttpgsaqgtrltqysdelifggpmgwgrlvaflifgaalcaesvknkemplvg 120
 QY 121 OVODMMWVAYLEPTRLADMIHSSGGMAEFTALYGGALAEERRLREGNMWASRVYLVGAVAL 180
 DB 121 qvgemwvayleptrladmihsqgwaefrtalyggaleearrlregnmwsvrtvlcgaval 180
 QY 181 GALVTVGAFASK 193

Db 181 galvtvgafask 193
 RESULT 10
 AAW97394
 ID AAW97394 standard; Protein; 192 AA.
 AC AAW97394;
 XX
 XX
 DT 20-MAY-1999 (first entry)
 XX
 XX Mammalian bcl-y protein.
 DE
 XX Rat bcl-y protein; Rbcl-y; human bcl-y protein; Hbcl-y; bcl-2 homologue;
 KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;
 KW head trauma; Alzheimer's Disease; neural; muscular degenerative disease;
 KW multiple sclerosis; myocardial infarction; vitally induced cell death;
 KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;
 KW premature cell death; cell death stimulator; prolonged cell life span;
 KW Kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;
 KW parasite.
 XX
 XX Mammalia.
 OS
 XX US5883229-A.
 PN
 XX 16-MAR-1999.
 PD
 XX 25-NOV-1997; 97US-0978523.
 PF
 XX 23-FEB-1996; 96US-0012201.
 PR 11-FEB-1997; 97US-0798897.
 PR 25-NOV-1997; 97US-0978523.
 XX
 XX (COCE-) COCENSYS INC.
 PA
 XX Guastella J;
 PI WPI; 1999-214150/18.
 DR
 XX Novel bcl-y homologues of the rat and human bcl-2 protein - useful
 PT for modulating programmed cell death
 PS Claim 2; Columns 19-22; 26pp; English.
 XX
 XX The present sequence represents a mammalian bcl-y protein.
 CC The specification describes rat bcl-y protein (Rbcl-y) and human bcl-y
 CC protein (Hbcl-y). Rbcl-y and Hbcl-y are homologues of the bcl-2 protein
 CC thought to be involved in programmed cell death (apoptosis and necrosis).
 CC Rbcl-y and Hbcl-y proteins may be used to treat conditions associated
 CC with a disruption of the cell death pathway. If they act as cell death
 CC inhibitors, they may be used in therapies to treat subjects suffering
 CC from: strokes, head trauma, Alzheimer's Disease, neural and muscular
 CC degenerative diseases (especially multiple sclerosis), myocardial
 CC infarction, vitally induced cell death, aging, spinal cord injuries and
 CC amyotrophic lateral sclerosis - conditions where cells under go premature
 CC cell death as a result of triggers which may or may not be apparent.
 CC They may also be used in this way to develop cell lines which remain
 CC viable in culture for an extended period. In contrast, if they act as
 CC cell death stimulators, Rbcl-y and Hbcl-y may be used to treat
 CC conditions associated with prolonged cell life span such as cancer
 CC (especially Kaposi's sarcoma and lung cancer) and auto/hyperimmune
 CC diseases. They may also be used to cause cell death in, and hence
 CC control, parasites.
 CC
 XX Sequence 192 AA:
 SQ
 Query Match 97.8%; Score 987; DB 20; Length 192;
 Best Local Similarity 97.9%; Pred. No. 6, 6e-100;
 Matches 188; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 2 ATPASTPDRALVADFEVGYRLRKGYCGAGPGPGPADPLHOAMRAAGDEFEFRRTF 61
 Db 1 atpsapdtrtalvadvfygkrlrkgyvcgagpgpgpadplhgamraagdefeftrrrtt 60
 QY 62 SDLAALHVTGSAQOQRTQVSDLEFQGGPNMGRVAFVFGAALCAESVKNKMEPLVG 121
 Db 61 sdlaaqlhvtcpsagqrftqvsdel fggpnmgrlvalfvfgaalcaesvknkemplvg 120
 QY 122 VQDMWVAVLETRLADWTHSSGGAFFETALYGDGALFEARLRREGNMASVTRVLTGAVALG 181
 Db 121 vqdmwvavletrladwthssggaefetalygdgaleearlrregnwastvtrltgavalg 180
 QY 182 ALVTGAFPFASK 193
 Db 181 alvtvgafpfask 192

RESULT 11
 AAY05533
 ID AAY05533 standard; Protein; 192 AA.
 AC AAY05533;
 DT 05-JUL-1999 (first entry)
 DE Mouse Bcl-w protein derivative.
 KW Spermatogenesis; Bcl-3; Bcl-2; mouse; fertility; infertility;
 KM animal model.
 OS Mus sp.
 PN W09913710-A1.
 PD 25-MAR-1999.
 PF 16-SEP-1998; 98MO-AU00764.
 PR 16-SEP-1997; 97AU-0009228.
 PA (HALL-) HALL INST MEDICAL RES WALTER & ELIZA.
 PI Adams J, Cory S, Gibson L, Koenigen F, Print C;
 DR WPI: 1999-243890/20.
 DR N-PSDB: AAX25135.
 XX An animal model exhibiting reduced levels of a Bcl-w protein and/or
 PT protein associated with Bcl-w
 PS Disclosure: Page 39; 52pp; English.
 XX The present sequence is described of a derivative of mouse Bcl-w
 CC (see also AAY05531), a pro-survival member of the Bcl-2 family that
 CC is widely expressed and which is essential for spermatogenesis.
 CC The derivative lacks the 24 N-terminal amino acids of Bcl-w.
 CC The invention relates generally to a method of treatment and to an
 CC animal model for the identification of molecules and genetic
 CC sequences useful for inducing or reducing fertility of male animals.
 CC Methods are provided for the treatment of infertility, or for
 CC reducing fertility, by modulating spermatogenesis. An animal model
 CC carries a mutation is at least one allele of the human or murine
 CC bcl-w gene (see AAX25132-35) or in a gene associated with bcl-w.
 CC Such animals have disorganised seminiferous tubules and are
 CC substantially infertile, but possess no other major abnormalities
 CC as determined by histological examination. They can be used to
 CC screen for therapeutic molecules including genetic sequences
 CC capable of inducing, enhancing or otherwise facilitating
 CC spermatogenesis in animals, or which can induce infertility.
 SQ Sequence 192 AA;

Query Match 96.2%; Score 970.5; DB 20; Length 192;
 Best Local Similarity 96.4%; Pred. No. 4.2e-98;
 Matches 186; Conservative 4; Mismatches 2; Indels 1; Gaps 1;

QY 1 MATPASTPDRALVADFEVGYRLRKGYCGAGPGPGPADPLHOAMRAAGDEFEFRRT 60
 Db 1 mptpsapdtrtalvadvfygkrlrkgyvcgagpgpgpadplhgamraagdefeftrrrtt 60
 QY 61 FSDLAALHVTGSAQOQRTQVSDLEFQGGPNMGRVAFVFGAALCAESVKNKMEPLVG 120
 Db 61 fsdlaaqlhvtcpsagqrftqvsdel fggpnmgrlvalfvfgaalcaesvknkemplvg 120
 QY 121 VQDMWVAVLETRLADWTHSSGGAFFETALYGDGALFEARLRREGNMASVTRVLTGAVALG 180
 Db 121 vqdmwvavletrladwthssggaefetalygdgaleearlrregnwastvtrltgavalg 179
 QY 181 GALVTGAFPFASK 193
 Db 180 galvtvgafpfask 192

RESULT 12
 AAM36048
 ID AAM36048 standard; Protein; 168 AA.
 AC AAM36048;
 DT 22-APR-1998 (first entry)
 DE Mouse bcl-w protein.
 KW Bcl-w; apoptosis; bcl-2; cell survival; treatment; therapy; cancer;
 KM diagnosis; degenerative disease.
 OS Mus sp.
 PN W09735971-A1.
 PD 02-OCT-1997.
 PF 27-MAR-1997; 97MO-AU00199.
 PR 27-MAR-1996; 96AU-0008965.
 PA (AMRA-) AMRAD OPERATIONS PTY LTD.
 PI Adams JM, Cory S, Gibson LM, Holmgren SP;
 DR WPI: 1997-489635/45.
 DR N-PSDB: AAT96578.
 XX Nucleic acid encoding apoptosis related gene bcl-w - used to induce
 PT or inhibit cell survival, e.g. for treatment of cancer and
 PT degenerative diseases
 PS Claim 6; Page 50-51; 86pp; English.
 XX This sequence represents a novel protein, bcl-w, encoded by the mouse
 CC bcl-2 gene family. This gene promotes cell survival, so its modulation
 CC is useful in treatment of cancer or auto-immune diseases, degenerative
 CC diseases (e.g. stroke, Alzheimer's disease, myocardial infarct, muscular
 CC degeneration, hypoxia, ischaemia, human immunodeficiency virus infection
 CC or in cell transplants. Up-regulation of the gene can also be used to
 CC modify cell lines cultured in vivo, e.g. to develop new lines, to
 CC facilitate isolation of hybridomas and to increase survival of primary
 CC explants during genetic modification. It can be used to produce
 CC recombinant Bcl-w for therapy, diagnosis, antibody production or
 CC screening of potential modulators.
 SQ Sequence 168 AA;

Query Match 87.1%; Score 879; DB 18; Length 168;

```

1 MATPASTPDRALVADVGYRLRQKGYCAGGEGPADPLHQAMRAAGDEFFETRRRT 60
  ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
  ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

```

to the target cell and another of which modifies an apoptotic response of the target cell. The fusion proteins are useful for identifying and isolating

CC or enhancing) apoptosis in a target cell, such as neuron, lymphocyte,
 CC cancer, neoplasm, macrophage, epithelial, stem, tumour or hyper-
 CC proliferative cell or an adipocyte. It is also useful for reducing
 CC apoptosis in a subject after transient ischemic neuronal injury,
 CC especially spinal cord injury. The fusion protein may be used to treat
 CC various diseases and injury conditions through inhibition or enhancement
 CC of apoptotic cellular response, including neurodegenerative disorders
 CC such as Alzheimer's disease, Huntington's disease, spinal muscular
 CC atrophy, stroke episodes and unregulated cell growth as in tumours and
 CC various cancers. The apoptosis-modifying fusion protein can be delivered
 CC effectively throughout the body and targeted to selective tissue and
 CC cells.

SO Sequence 411 AA:

Query Match 42.6%; Score 429.5; DB 22; Length 411;
 Best Local Similarity 39.5%; Pred. No. 2.1e-38;
 Matches 92; Conservative 27; Mismatches 63; Indels 51; Gaps 4;

QY 11 RALVADPVCGRRLRQKGY-----VCGAGP-----GGGPPA 39
 Db 26 relvvdflsyklsgkyswsgfsdveenteapegetesemelpsalngpswbladspav 85
 QY 40 D-----PLHQAMRAAGDEFETFRFRTPSDLAOLHVTGSAOQRTQ 81
 Db 86 ngatahsssladarevlpmaavkqalreaqdefelrrrratsdltsgthitpqtaygsfeg 145
 QY 82 VSDELFGCGPMMGRVLAFFVFGAALCAESVKNKEMLPGVQDMWVAVLETRLADWHS 141
 Db 146 vvnelfrdgynwgrivafsfsgalcvsvdkemqvivsrilaamatyindhlepwygen 205
 QY 142 GGMAFETALYGDGALFEARRLRE--GNWASVRYLTGVALGALVYMGAPFAS 192
 Db 206 ggwdltfvdlygnnaaaesrkqgerfnrwlftgmvtavvllgslfstrkaysaa 238

RESULT 15

AAB73303

ID AAB73303 standard; Protein; 233 AA.

XX AAB73303;

DT 22-MAY-2001 (first entry)

XX Rat wild-type Bcl-XL protein.

XX Rat Bcl-XL; apoptosis inhibitor; programmed cell death inhibitor;

KW wild-type; antiapoptotic; cell death-associated disease;

KW tissue transplant preservative.

XX Rattus norvegicus.

PN WO200112807-A1.

PD 22-FEB-2001.

PF 17-AUG-2000; 2000WO-JP05502.

PR 17-AUG-1999; 99UP-0230642.

PA (NISC-) JAPAN SCI & TECHNOLOGY CORP.

PI Ohta S, Asoh S;

DR WPI; 2001-211219/21.

DR N-PSDB; AAF75960.

PT Modified cDNA of rat bcl-x gene and encoded protein with membrane
 PT permeability to enhance uptake for effective inhibition of cell death
 PT e.g. apoptosis, useful in remedies for diseases associated with cell
 PT death -
 XX

PS Claim 6; Page 45-46; 56pp; Japanese.

XX The invention relates to a mutant rat Bcl-x protein and the cDNA
 CC encoding it. The mutant rat Bcl-x protein (Bcl-xFNK) has the
 CC substitutions Y22F, Q26K, and R165K relative to the wild-type Bcl-xL
 CC protein. The invention also encompasses recombinant vectors and host
 CC cells comprising the modified nucleic acid sequence. The mutant Bcl-x
 CC protein is able to permeate the cell membrane, thus enhancing its
 CC ability to be taken up into a cell and to act as an inhibitor of
 CC apoptosis (programmed cell death). Bcl-xFNK and nucleic acids encoding
 CC it are useful in remedies for diseases associated with cell death and
 CC in additives for maintaining the stability of transplanted cells and
 CC organs. The present sequence represents wild-type rat Bcl-xL.

SO Sequence 233 AA:

Query Match 42.2%; Score 425.5; DB 22; Length 233;
 Best Local Similarity 40.9%; Pred. No. 2.7e-38;
 Matches 92; Conservative 23; Mismatches 57; Indels 53; Gaps 4;

QY 11 RALVADPVCGRRLRQKGY-----V 28
 Db 6 relvvdflsyklsgkyswsgfsdveenteapeeteperetpsalngpswbladspav 65
 QY 29 CGAGPEGGPAD-----PLHQAMRAAGDEFETFRFRTPSDLAOLHVTGSAOQRT 80
 Db 66 nga-tghsssladarevlpmaavkqalreaqdefelrrrratsdltsgthitpqtaygsf 124
 QY 81 QVSDELFGCGPMMGRVLAFFVFGAALCAESVKNKEMLPGVQDMWVAVLETRLADWHS 140
 Db 125 gvnelfrdgynwgrivafsfsgalcvsvdkemqvivsrilaamatyindhlepwygen 184
 QY 141 SGGMAFETALYGDGALFEARRLRE--GNWASVRYLTGVALGALVYMGAPFAS 183
 Db 185 nggwdltfvdlygnnaaaesrkqgerfnrwlftgmvtavvllgslfstrkaysaa 229

Search completed: June 10, 2002, 10:25:48
 Job time: 161 sec

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 10, 2002, 10:26:22; Search time 28.15 Seconds

(without alignments)
658.801 Million cell updates/sec

Title: US-09-155-327E-9

Perfect score: 1009

Sequence: 1 MATPASTPTDRLALVADFEVGY.....LTGVALGALVTFGAFFASK 193

Scoring table: BIOSUM62

Gapop 10.0, Gapext 0.5

Searched: 283138 seqs, 96089334 residues

Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :
1: p1r1:*
2: p1r2:*
3: p1r3:*
4: p1r4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	425.5	42.2	233	2	I49056	bcl-x long - mouse
2	424.5	42.1	233	2	B47537	apoptosis regulator
3	421.5	41.8	233	2	S51761	Bcl-x protein - ra
4	420.5	41.7	233	2	A37332	transforming prote
5	411	40.7	232	2	S24390	transforming prote
6	408.5	40.5	239	1	TVH0A1	transforming prote
7	408	40.4	236	2	I67432	Bcl-2 - rat (fragm
8	403	39.9	236	2	I53744	gene bcl-2 protein
9	402	39.8	236	1	TVMSA1	transforming prote
10	401.5	39.8	233	2	I67431	Bcl-x-long - rat
11	399	39.5	236	2	UC7383	B-cell lymphoma 2
12	375	37.2	190	2	A47537	apoptosis regula
13	374.5	37.1	214	2	I49057	bcl-x transmembran
14	371.5	36.8	227	2	JF0203	apoptosis regula
15	353	35.0	216	2	B37332	transforming prote
16	345.5	34.2	199	1	TVMSB1	transforming prote
17	342	33.9	205	1	TVH0B1	transforming prote
18	277.5	27.5	154	2	I58194	gene bcl-2 protein
19	179	17.7	170	2	I49055	bcl-x short - mous
20	174	17.2	211	2	S58873	Bak protein - huma
21	171	16.9	176	2	I67435	gene bcl-x-short pr
22	169	16.7	211	2	S58875	cdh-2 protein - hu
23	158.5	15.7	192	2	D47538	bcl-2-associated p
24	154	15.3	192	2	A47538	bcl-2-associated p
25	154	15.3	261	2	H88578	protein ced-9 [imp
26	154	15.3	280	2	A53189	apoptosis suppress
27	150.5	14.9	133	2	I53295	bcl-2-associated p
28	147.5	14.6	179	2	JC7255	Bax-delta protein
29	147.5	14.6	218	2	B47538	bcl-2-associated p

30	144	14.3	177	2	S54778	NR-13 protein - qu
31	141	14.0	255	2	JC7567	Mcl-1a protein - z
32	138.5	13.7	143	2	I38921	bcl-2-associated p
33	119	11.8	175	2	I39055	Bcl-2 related - hu
34	116	11.5	350	2	A47476	Bcl2 homolog MCL1
35	105	10.4	172	2	I49449	hemopoietic-specif
36	88	8.7	185	2	B83217	hypothetical prote
37	86.5	8.6	301	2	T36534	probable lipase/es
38	86.5	8.6	3433	1	GNMVKV	genome polyprotein
39	86	8.5	270	2	A12598	dihydrodipicolinat
40	86	8.5	279	2	B97381	dihydrodipicolinat
41	83.5	8.3	358	1	AJLCQB	glutamate-ammonta
42	83.5	8.3	872	2	H95160	alanyl-tRNA synthet
43	83.5	8.3	872	2	G98026	alanine--tRNA 119a
44	82.5	8.2	3430	1	GNMVKV	genome polyprotein
45	81.5	8.1	886	2	A32758	beta-amyloid-like

ALIGNMENTS

RESULT 1

I49056 bcl-x long - mouse

C:Species: Mus musculus (house mouse)

C>Date: 02-Jul-1996 #sequence-revision 02-Jul-1996 #text-change 16-Jul-1999

C:Accession: I49056; S52866

R:Fang, W.; Rivard, J.J.; Mueller, D.L.; Behrens, T.W.

T:Immunol. 153, 4388-4398, 1994

A>Title: Cloning and molecular characterization of mouse bcl-x in B and T lymphocytes

A:Accession: I49055; M01D:95052604

A:Status: preliminary; translated from GB/EMBL/DBJ

A:Molecule type: mRNA

A:Residues: 1-233 <RES>

A:Cross-references: EMBL:U0101; NID:9506647; PIDN:AA82173.1; PID:9506648

R:Kamesaki, H.; Michaud, G.Y.; Takatsu, K.; Okuma, M.

A:Submitted to the EMBL Data Library, November 1994

A:Description: IL-5 inhibits anti-IgM-induced apoptosis in an immature B cell line th

A:Reference number: S52866

A:Accession: S52866

A:Status: preliminary

A:Molecule type: mRNA

A:Residues: 1-233 <KAM>

A:Cross-references: EMBL:X83574; NID:9695622; PIDN:CAA58557.1; PID:9695623

C:Superfamily: bcl transforming protein

Query Match 42.2%; Score 425.5; DB 2; Length 233;
Best Local Similarity 40.9%; Pred. No. 4.3e-32;
Matches 92; Conservative 23; Mismatches 57; Indels 53; Gaps 4;

OY	11	RALVADFEVGRIRKQGY-----	-----V 28
DB	6	RELVDLSTYKLSQKGYWSQFSDVEENKTRPDETERETPSAINGNPSMHLADSPAV 65	
OY	29	CGAGRGESPAAD-----PLHQAMRAAGDEPFRTRRRTFSDLAOLHTPGSAQGRFT 80	
DB	66	NGA-TGHSSSDAREFVIMAAVAKOALREAGDEFEIRYRRASDLSLTSLHTPGAYVSFE 124	
OY	81	QVSDLEFGCGPNNWGLVAFVFGAALCAESYNNKEMEPYGVQYQVMVAYLETRADMTIS 140	
DB	125	QVNNLEFDFDGVNMGRTVAFFSFGALCVESVDKEMQVLSIASMMATYLLNDHLEPWIOE 184	
OY	141	SGGMAEFALYDGALEBARLRLE--GNMAVSRTVLGVALGAL 183	
DB	185	NGGNFTFDYDYGNNAAASRKGQERFNRMFLTGMTVAGVVLGSL 229	

RESULT 2
B47537
apoptosis regulator bcl-xL - human
N:Alternate names: bcl-2-related protein

N;Contains: apoptosis regulator bcl-xS
 C:Species: Homo sapiens (man)
 C>Date: 16-Aug-1996 #sequence_revision 16-Aug-1996 #text_change 16-Jul-1999
 C:Accession: B47537; C47537
 R:Boise, L.H.; Gonzalez-Garcia, M.; Postema, C.E.; Ding, L.; Lindsten, T.; Turka, L.A.;
 Cell 74, 597-608, 1993
 A>Title: bcl-x, a bcl-2-related gene that functions as a dominant regulator of apoptotic
 A:Reference number: A47537; MUID:93364977
 A:Accession: B47537
 A:Status: nucleic acid sequence not shown; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-233 <BOI>
 A:Cross-references: GB:L20121; NID:9510900; PIDN:CAA00661.1; PID:9510901
 A:Accession: C47537
 A:Status: nucleic acid sequence not shown; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-69, 'G', 71-125, 189-233 <BO2>
 A:Cross-references: GB:L20122; NID:9623236; PIDN:CAA00662.1; PID:9623237
 C:Genetics:
 A:Gene: GDB:BCL2L
 A:Cross-references: GDB:228079
 C:Superfamily: bcl transforming protein
 C:Keywords: alternative splicing; apoptosis
 F:1-233/Product: apoptosis regulator bcl-xL #status predicted <MA1>
 F:1-125,189-233/Product: apoptosis regulator bcl-xS #status predicted <MA2>

Query Match 42.1%; Score 424.5; DB 2; Length 233;
 Best Local Similarity 40.2%; Pred. No. 5.3e-32;
 Matches 90; Conservative 24; Mismatches 59; Indels 51; Gaps 4;

QY 11 RALVADVGYRLROKGY-----VCGAGP---GGGPPA 39
 Db 6 RELVVDLSTYKLSQKGSWSQSDVEENRTPEETEPETPSAINGNSWMLADSPAVNG 65
 QY 40 D-----PLHOAMRAGDEFEFRFRFRFRPSDLAOLHVPGSAAQGRFTQ 81
 Db 66 NGATFSSSIDAREVTPMAAVKQALREAGDEFEFLRRRAFSDLTSLHTPGTAQSFED 125
 QY 82 VSDLEFGGPNMGRVAFVFGAALCAESVKNKEEMPLVGQVODMVAYLETRLADMIHSS 141
 Db 126 VVNELEFDGVNMGRIYAFEFSGALCVESYDKEMQVLVSIAAMATYLNHLEPIQEN 185
 QY 142 GMAEFTALYGDGALAEARLRLE--GNMASVRTVLTGAVALGAL 183
 Db 186 GMDTFVLDYGNMAAESRKGQERFNRWFLTGMTVAGVLLGSL 229

RESULT 3

S51761
 BCL-X protein - rat
 C:Species: Rattus norvegicus (Norway rat)
 C>Date: 07-May-1995 #sequence_revision 01-Sep-1995 #text_change 02-Mar-2001
 C:Accession: S51761; S51762
 R:Michaeldis, T.M.
 submitted to the EMBL Data Library, November 1994
 A:Reference number: S51761
 A:Accession: S51761
 A:Status: preliminary
 A:Molecule type: DNA
 A:Residues: 1-233 <MIC>
 A:Cross-references: EMBL:X82537; NID:9607176; PIDN:CAA57886.1; PID:9607177
 A:Experimental source: embryonic; Brain
 A:Accession: S51762
 A:Status: preliminary
 A:Molecule type: DNA
 A:Residues: 1-125, 189-233 <MI2>
 A:Cross-references: EMBL:X82537; NID:9607176; PIDN:CAA57887.1; PID:9607178
 A:Experimental source: embryonic; Brain
 A:Note: smaller form due to splicing
 C:Genetics:
 A:Introns: 125/3
 C:Superfamily: bcl transforming protein

Query Match 41.8%; Score 421.5; DB 2; Length 233;
 Best Local Similarity 40.8%; Pred. No. 1e-31;
 Matches 91; Conservative 23; Mismatches 56; Indels 53; Gaps 4;

QY 13 LVADFGVYRLROKGY-----VCG 30
 Db 8 LVDVDFSTYKLSQKGSWSQSDVEENRTPEETEPETPSAINGNSWMLADSPAVNG 67
 QY 31 AGPGEGRPAD-----PLHOAMRAGDEFEFRFRFRFRPSDLAOLHVPGSAAQGRFTQ 82
 Db 68 A-TGSSSIDAREVTPMAAVKQALREAGDEFEFLRRRAFSDLTSLHTPGTAQSFED 126
 QY 83 SDELFGGPNMGRVAFVFGAALCAESVKNKEEMPLVGQVODMVAYLETRLADMIHSSG 142
 Db 127 VVNELEFDGVNMGRIYAFEFSGALCVESYDKEMQVLVSIAAMATYLNHLEPIQEN 186
 QY 143 GMAEFTALYGDGALAEARLRLE--GNMASVRTVLTGAVALGAL 183
 Db 187 GMDTFVLDYGNMAAESRKGQERFNRWFLTGMTVAGVLLGSL 229

RESULT 4

A37332
 transforming protein (bcl-2-alpha) - chicken
 C:Species: Gallus gallus (chicken)
 C>Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 23-Feb-1997
 C:Accession: A37332; S35453
 R:Eguuchi, Y.; Ewert, D.L.; Tsujimoto, Y.
 Nucleic Acids Res. 20, 4187-4192, 1992
 A>Title: Isolation and characterization of the chicken bcl-2 gene: expression in a va
 A:Reference number: A37332; MUID:92375724
 A:Accession: A37332
 A:Status: nucleic acid sequence not shown
 A:Molecule type: DNA
 A:Residues: 1-233 <EGU>
 A:Cross-references: EMBL:D11381
 C:Genetics:
 A:Introns: 189/3
 C:Superfamily: bcl transforming protein
 C:Keywords: mitochondrion; transforming protein; transmembrane protein

Query Match 41.7%; Score 420.5; DB 2; Length 233;
 Best Local Similarity 37.6%; Pred. No. 1.3e-33;
 Matches 86; Conservative 33; Mismatches 61; Indels 49; Gaps 4;

QY 9 DTRALVADFGVYRLROKGYVCGAG-----PGEGRPADP----- 41
 Db 10 DNRETLVKTYHYKLSQKGSWSQSDVEENRTPEETEPETPSAINGNSWMLADSPAVNG 69
 QY 42 -----PLHOAMRAGDEFEFRFRFRFRPSDLAOLHVPGSAAQGRFTQ 84
 Db 70 AASEVTPAEGRLPAPPGVHLALRQAGDEFSSRRYQDFQMSGQHLTPFTAHGFVAIVE 129
 QY 85 ELFGGPNMGRVAFVFGAALCAESVKNKEEMPLVGQVODMVAYLETRLADMIHSSG 144
 Db 130 ELFRDGVNMGRIYAFEFSGALCVESYDKEMQVLVSIAAMATYLNHLEPIQEN 189
 QY 145 AEFALYGDGALAEARLRLEGNMASVRTVLTGAVALGALVVGAFPSK 193
 Db 190 DAFVELYGN---SMRPLEFSWISLKTITLS-LVVGACITVAGVLLGSL 233

RESULT 5

S24390
 transforming protein (bcl-2) homolog - chicken
 C:Species: Gallus gallus (chicken)
 C>Date: 13-Jan-1995 #sequence_revision 13-Jan-1995 #text_change 16-Jul-1999
 C:Accession: S24390
 R:Cazals-Hatem, D.L.; Louie, D.C.; Tanaka, S.; Reed, J.C.
 Biochim. Biophys. Acta 1132, 109-113, 1992

A:Title: Molecular cloning and DNA sequence analysis of cDNA encoding chicken homologue
A:Reference number: S24390; MUID:92379084
A:Accession: S24390
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-232 <CAL>
A:Cross-references: EMBL:Z11961; NID:662969; PIDN:CAAT8018.1; PID:g62970
A:Note: the sequence has been corrected in reference A37332
C:Superfamily: bcl transforming protein
C:Keywords: mitochondrion; transmembrane protein

Query Match 40.7%; Score 411; DB 2; Length 232;
Best Local Similarity 37.3%; Pred. No. 9.5e-31;
Matches 85; Conservative 33; Mismatches 62; Indels 48; Gaps 4;

QY 9 DTRALVADFGVRLRQKGYCGAG-----PGESPADP----- 41
DB 10 DNRRLVAKYIHYKLSQRYGDMAAGDPPPPAPAPAAVAAGAAASHHRRSPAPRL 69
QY 42 -----LHOAMRAAGDEFEFRFRFTSDLAOLHVTGSAOQRTQVSDE 85
DB 70 LVRCPRLRGCAAPGVHIALRQAGDEFRRQRFQMSQGLHPTATGRFAVVEE 129
QY 86 LFQGGPMMGRVAFVFGAALCAESVKNEMEPVGVODMVAVYLETRLADWIHSSGWA 145
DB 130 LFRDGVNWRVIAVFEFGVCMVESVNRMSPLVDNITWTEYLNRLHLMWIODNGMD 189
QY 146 EFTALGCGALEEARLRREGNMAVRYTLGVALCALVYGAFFASK 193
DB 190 AVEELYGN---SMRPLDFPSWISLTKTLLS-LVLGACITLGAYLGHK 232

RESULT 6

TYHUA1

transforming protein bcl-2, splice form alpha - human

C:Species: Homo sapiens (man)

C:Date: 31-Dec-1988 #sequence revision 07-Jun-1996 #text change 15-Oct-1999

C:Accession: C37332; A29409; S02452; A24428; A27622; B27622

R:Kuguchi, Y.; Ewert, D.L.; Tsujimoto, Y.

Nucleic Acids Res. 20, 4187-4192, 1992

A:Title: Isolation and characterization of the chicken bcl-2 gene: expression in a variety of tissues

A:Reference number: A37332; MUID:92375724

A:Accession: C37332
A:Status: nucleic acid sequence not shown; not compared with conceptual translation

A:Molecule type: DNA

A:Residues: 1-239 <EGU>

A:Note: this report is a correction

R:Tsujimoto, Y.; Croce, C.M.
Proc. Natl. Acad. Sci. U.S.A. 83, 5214-5218, 1986

A:Title: Analysis of the structure, transcripts, and protein products of bcl-2, the gene for the B-cell lymphoma

A:Reference number: A29409; MUID:86259760

A:Accession: A29409

A:Molecule type: mRNA

A:Residues: 1-95, 'A', 'G', '111-236, 'S', '238-239 <TSU>

A:Cross-references: GB:M13994; NID:9179366; PIDN:AA51813.1; PID:g179367

A:Note: this sequence has been corrected in reference A37332

R:Sefto, M.; Jaeger, U.; Hockett, R.D.; Graninger, W.; Bennett, S.; Goldman, P.; Korsmeyer, S.J. J. Biol. Chem. 267, 123-131, 1992

A:Title: Alternative promoters and exons, somatic mutation and deregulation of the Bcl-2 gene in human B-cell lymphoma

A:Reference number: S02452; MUID:88196071

A:Accession: S02452

A:Molecule type: mRNA

A:Residues: 1-239 <SET>

R:Clay, M.L.; Smith, S.D.; Sklar, J.
Cell 47, 19-28, 1986

A:Title: Cloning and structural analysis of cDNAs for bcl-2 and a hybrid bcl-2/immunoglobulin heavy chain enhancer

A:Reference number: A24428; MUID:87002488

A:Accession: A24428

A:Molecule type: mRNA

A:Residues: 1-58, 'T', '60-116, 'R', '118-239 <CLE>

A:Cross-references: GB:M1745; NID:9179370; PIDN:AA35591.1; PID:g179371

R:Hua, C.; Zorn, S.; Jensen, J.P.; Coupland, R.W.; Ko, H.S.; Wright, J.J.; Bakshi, A.
Oncogene Res. 2, 263-275, 1988

A:Title: Consequences of the t(14;18) chromosomal translocation in follicular lymphoma

A:Reference number: A27622; MUID:88217344

A:Accession: A27622

A:Molecule type: mRNA

A:Residues: 1-58, 'T', '60-239 <HDA>

A:Accession: B27622

A:Molecule type: DNA

A:Residues: 1-6, 'S', '8-58, 'T', '60-128, 'C', '130-239 <HDA2>

A:Note: the sequence was determined from the germ-line gene

C:Comment: Constitutive expression of BCL2 following t(14;18) chromosomal translocation

C:Genetics:

A:Gene: GDB:BCL2

A:Cross-references: GDB:119031; OMIM:151430

A:Map position: 18q21.3-18q21.3

C:Function:

A:Description: blocks apoptosis in hematopoietic cells

C:Superfamily: bcl transforming protein

C:Keywords: alternative splicing; apoptosis; B-cell lymphoma; follicular lymphoma; pr

Query Match 40.5%; Score 408.5; DB 1; Length 239;
Best Local Similarity 36.6%; Pred. No. 1.7e-30;
Matches 86; Conservative 35; Mismatches 59; Indels 55; Gaps 5;

QY 9 DTRALVADFGVRLRQKGYCGAG-----PGE----- 35
DB 10 DNRRLVAKYIHYKLSQRYGDMAAGDPPPPAPAPAAVAFIFSSPGHPPAASRDVART 69
QY 36 -----GRAPD-----LHOAMRAAGDEFEFRFRFTSDLAOLHVTGSAOQRTQVSDE 85
DB 70 SPLTPAPGAAGAPALSPVPVYVHLLRQAGDEFRRQRFQMSQGLHPTATGRFAVVEE 129
QY 79 FTQVSDLEFQGGPMMGRVAFVFGAALCAESVKNEMEPVGVODMVAVYLETRLADWI 138
DB 130 FATVEELFRGVNMGRIIVAFEEFGVCMVESVNRMSPLVDNITWTEYLNRLHLMWIODNGMD 189
QY 139 HSSGMAEFYALYDGALEEARLRREGNMAVRYTLGVALCALVYGAFFASK 193
DB 190 QDNGMDAFVELYQ---PSMRPLDFPSWISLTKTLLS-LVACITLGAYLGHK 239

RESULT 7

BCL-2 - rat (fragment)

C:Species: Rattus norvegicus (Norway rat)

C:Date: 26-Jul-1996 #sequence revision 26-Jul-1996 #text change 16-Jul-1999

C:Accession: 167432

R:Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L.
Endocrinology 136, 232-241, 1995

A:Title: Expression of members of the bcl-2 gene family in the immature rat ovary: eq

constitutive bcl-2 and bcl-x-long messenger ribonucleic acid levels.

A:Reference number: 153295; MUID:95129487

A:Accession: 167432

A:Status: preliminary; translated from GB/EMBL/DBJ

A:Molecule type: mRNA

A:Residues: 1-236 <RDS>

A:Cross-references: EMBL:U34964; NID:g1004378; PIDN:AA77687.1; PID:g1004379

C:Superfamily: bcl transforming protein

Query Match 40.4%; Score 408; DB 2; Length 236;
Best Local Similarity 35.8%; Pred. No. 1.8e-30;
Matches 83; Conservative 35; Mismatches 62; Indels 52; Gaps 3;

QY 9 DTRALVADFGVRLRQKGY----- 27
DB 10 DNRRLVAKYIHYKLSQRYGDMAAGDPPPPAPAPAAVAFIFSSPGHPPAASRDVART 69
QY 28 -----VCGAGPGEPPADPLHOAMRAAGDEFEFRFRFTSDLAOLHVTGSAOQRTQ 81
DB 70 SPLRPLVANNAGPALSPVPVYVHLLRQAGDEFRRQRFQMSQGLHPTATGRFAVVEE 129
QY 82 VSDELFGGPMGRVAFVFGAALCAESVKNEMEPVGVODMVAVYLETRLADWIHSS 141

Db 130 VVEELFRGVAMGSLVAEEFGGCMVCESVNRKMYPLVDNIALMTEFLYLRHLLHTMTQDN 189
 QY 142 GGMAEFTLALDGALEEARLRLEGNGMASVPTVLGAVALLGALTYTGAAFEASK 193
 Db 190 GGMDAFVLYLG-----PSMRPLFDDSSMSKLTLSLAL-VGACITLGGVLYGKH 236

RESULT 8
153744
gene bcl-2 protein - rat
C:Species: Rattus norvegicus (Norway rat)
C:Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 16-Jul-1999
C:Accession:153744
R:Sato, T.; Irie, S.; Krajewski, S.; Reed, J.C.
Gene 140, 291-292, 1994
A:Title: Cloning and sequencing of a cDNA encoding the rat Bcl-2 protein.
A:Reference number: 153744; MUID:94193015
A:Accession: 153744
A:Status: preliminary; translated from GB/EMBL/DDBJ
A:Molecule type: mRNA
A:Residues: 1-236 <RES>
A:Cross-references: GB:LL4680; NID:g408946; PIDN:AA53662.1; PID:g408947
C:genetics:
A:Gene: bcl1-2
C:Superfamily: bcl transforming protein

Query Match	39.9%	Score 403;	DB 2;	Length 226;
Best Local Similarity	35.3%	Pred. No. 5.4e-30;		
Matches	82;	Conservative	35;	Mismatches 65; Indels 52; Gaps 3;

QY	9	DTRALVADPVGRIKQKGY-----	27
		: : : : : : :	
Db	10	DNREIVMYRIYHKLSQRGYEMDTGDESDAPLRAPRPGIFSPQPSNRTPAVHRDTAART	69
		: : : : : : :	
QY	28	-----YCGAGGEGSPADPLTHQARAAAGDEFETPRFRFSDPLAOLHTPGSAOORFQ	81
		: : : : : : : : : : : :	
Db	70	SPLRLVLANAGPALSPVPVPVYHLLTRRRAGDDPSRRYKRDFAMSSQLHTPTTAGRFRT	129
		: : : : : : : : : : : :	
QY	82	VSDLEFGCGPMWGRIVAFVFGAALCAESVNMKEPPLGVQYDMMVAVYLETRLADIHS	141
		: : : : : : : : : : : : : : : : :	
Db	130	VVEELFRRGVNMGRIVAFEEFGVACVCSVYNREMSPLVDNIILMTTEYLNRLLHWIDON	189
		: : : : : : : : : : : : : : : : :	
QY	142	GGNAEFTALYDGLAEARRLREGMMAVRYPLTAGVALYATVGAPEASK	193
		: : : : : : : : : : : :	
Db	190	GGWDAPFVLYIG----PSMRPLFDSWLSKLTLLSLAL--VGACTLTGATLYGKH	236
		: : : : : : : : : : : : : : : :	

RESULT 9
TVMSA1
Transforming protein bcl-2-alpha - mouse
C:Species: Mus musculus (house mouse)
C:Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 18-Jun-1999
C:Accession: A25960; E37332
R:Negrini, M.; Siliini, E.; Kozak, C.; Tsujimoto, Y.; Croce, C.M.
Cell 49,, 455-463, 1987
A:Title: Molecular analysis of mbcl-2: structure and expression of the murine gene homolog
A:Reference number: A90893; MUID:87187643
A:Accession: A25960
A:Molecule type: DNA
A:Residues: 1-236 <NMG>
A:Cross-references: GB:L31532; GB:M16506; NID:g468336; PIDN:AAA37282.1; PID:g387109
R:Esuguchi, Y.; Ewert, D.L.; Tsujimoto, Y.
Nucleic Acids Res. 20, 4187-4192, 1992
A:Title: Isolation and characterization of the chicken bcl-2 gene: expression in a variety
A:Reference number: A37332; MUID:92375724
A:Accession: E37332
A:Status: preliminary; nucleic acid sequence not shown; not compared with conceptual translation
A:Molecule type: DNA
A:Residues: 1-33, 'E', 34-220, 'AL', 223-236 <EGU>
C:Genetics:
A:Gene: BCL2

A: Introns: 192/3
C: Superfamily: bcl transforming protein
Keywords: alternative splicing; mitochondrion; transforming protein; transmembrane

[illegible]

RESULT 10
167431
BCL-X-Long - rat
C:Species: Rattus norvegicus (Norway rat)
C:Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 16-Jul-1999
C:Accession: 167431
R:Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L.
A:Title: Expression of members of the bcl-2 gene family in the immature rat ovary: constitutive bcl-2 and bcl-x-long messenger ribonucleic acid levels.
A:Reference number: 153295; MUID:95129487
A:Accession: 167431
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-233 <RES>
A:Cross-references: EMBL:U034963; NID:g10004376; PIDN:AAA77686.1; PID:g10004377
C:Superfamily: bcl transforming protein

Query Match	39.8%;	Score 401.5;	DB 2;	Length 233;
Best Local Similarity	39.1%;	Pred. No. 7.3e-30;		
Matches	88;	Conservative	23;	Mismatches 61;
				Indels 53;
				Gaps 4;

Db 6 RELVDFLSYKLSQKGYMSQFSDVEENRTPEETPERETPSALINGNPSHLADSPAV 65

QY 29 CGAGPEBGAAD-----ELHQAMRAAGDEFTFRRTFSDLAQLHVTGSAQGPFT 80

66 NGA-TGHSSILAREVILPMAAVKALRPAAGSEELRYBRRAFFSLTSLQITPGTGYOSFE 124

[illegible]

```
QY      141 SGGWAEFTALYGDALGEARRLRE--GNWASVRVLTGAVALGAL 183
      :||| | ||| : ||| : | ||| :
Db      185 NGGWDTFVDLYGNNTAPESRKQGERFNRWELTGMVAVGLLGS 229
```

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RESULT 11
JC7383
B-cell lymphoma 2 protein - Chinese hamster
C.Species: Cricetus griseus (Chinese hamster)
C.Date: 17-Nov-2000 #sequence_revision 17-Nov-2000 #text_change 08-Dec-2000
C.Accession: JC7383
C.Tomicic, M.T.; Christmann, M.; Kalna, B.

```

Biochem. Biophys. Res. Commun. 275, 899-903, 2000

A:Title: Cloning and functional analysis of cDNA encoding the hamster Bcl-2 protein.

A:Reference number: J07383

A:Contents: Ovary

A:Accession: J07383

A:Molecule type: mRNA

A:Residues: 1-236 <TR>

A:Cross-references: GB:AJ271720

C:Comment: This protein has anti-apoptotic function, and supports cell survival.

C:Genetics:

A:Gene: bcl-2

A:Superfamily: bcl transforming protein

C:Keywords: B-cell lymphoma; ovary

Query Match 39.5%; Score 399; DB 2; Length 236;

Best Local Similarity 34.9%; Pred. No. 1.3e-29;

Matches 81; Conservative 35; Mismatches 64; Indels 52; Gaps 3;

9 DTALVADFGYRLRQGY----- 27

10 DNREIVAKYHYKLSQRYEMVDVDAAPLGAAPTPGIFSPQPSNPTRAVHRDMAART 69

28 -----VCGAGPGEGRPADPLHOAMRAAGDEFTFRRTFSDLAOLHTVPGSAOQRTQ 81

70 SPLRPVATGTPPLSPVPVYVHLTLRRAGDDFSRRYRDPFAESSQLHTPTAGRPAT 129

82 VSDLEFGCGNMGRLVAFVFGAALCAESYKMEPLVQVDPMVAVLETRLDWIHS 141

130 VVEELFEDGVMGRIVAFVFEFGVMCEVSYNREMSPLVNIALMMEYLNRLHHTWIDN 189

142 GMAEFALYGDALIEARRLREGNMAVTRVITGVALGALYVAFASK 193

190 GGMVAFELVY-----PSVRPLDFSMLSLTKTLTLAL-VGACITLGLTYLGHK 236

RESULT 12

A47537

apoptosis regulator bcl-x - chicken

C:Species: Gallus gallus (chicken)

C:Date: 03-May-1994 #sequence_revision 03-May-1994 #text_change 16-Jul-1999

C:Accession: A47537

R:Boise, L.H.; Gonzalez-Garcia, M.; Postema, C.E.; Ding, L.; Lindsten, T.; Turka, L.A.;

Cell 74, 597-608, 1993

A:Title: bcl-x, a bcl-2-related gene that functions as a dominant regulator of apoptotic

A:Reference number: A47537; MUID:93364977

A:Accession: A47537

A:Status: preliminary

A:Molecule type: DNA

A:Residues: 1-190 <BOI>

A:Cross-references: GB:223110; GB:U20120; NID:9510898; PIDN:CAA80657.1; PID:9510899

C:Superfamily: bcl transforming protein

Query Match 37.2%; Score 375; DB 2; Length 190;

Best Local Similarity 43.2%; Pred. No. 1.7e-27;

Matches 80; Conservative 15; Mismatches 44; Indels 46; Gaps 3;

11 RALVADFGYRLRQGY-----VCGAGPGEGRPADPLHOAMRAAGDEFTFRRTFSDLAOLHTVPGSAOQRTQVSD 37

6 RELVIDFVSKLSQRGCHMSELEEDENRTTAARAEADSVLNGSPSHPRAGHVNAT 65

38 -----AADPLHOAMRAAGDEFTFRRTFSDLAOLHTVPGSAOQRTQVSD 85

66 VHSSELEHIVASDVRQALRAGDEFTFRRTFSDLAOLHTVPGSAOQRTQVSD 125

86 LFOGPNMGRVLAFFVFGAALCAESYKMEPLVQVDPMVAVLETRLDWIHS 145

126 LFHGVNMGRIVAFVFEFGVMCEVSYNREMSPLVNIALMMEYLNRLHHTWIDN 185

146 EFTAL 150

186 R-TAL 189

RESULT 13

I49057

bcl-x transmembrane deleted - mouse

C:Species: Mus musculus (house mouse)

C:Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 16-Jul-1999

C:Accession: I49057

R:Fang, W.; Rivaud, J.J.; Mueller, D.L.; Behrens, T.W.

J. Immunol. 153, 4388-4398, 1994

A:Title: Cloning and molecular characterization of mouse bcl-x in B and T lymphocytes

A:Reference number: I49057; MUID:95052604

A:Accession: I49057

A:Status: preliminary; translated from GB/EMBL/DBJ

A:Molecule type: mRNA

A:Residues: 1-214 <RES>

A:Cross-references: EMBL:U01012; NID:9506649; PIDN:AAA82174.1; PID:9506650

C:Genetics:

A:Gene: bcl-x-long

C:Superfamily: bcl transforming protein

Query Match 37.1%; Score 374.5; DB 2; Length 214;

Best Local Similarity 42.2%; Pred. No. 2.1e-27;

Matches 79; Conservative 17; Mismatches 40; Indels 51; Gaps 3;

11 RALVADFGYRLRQGY-----V 28

6 RELVDFLSYKLSQKYSMSQFSDVEENRTAEETEARETPPSAINGPSNHLADSPAV 65

29 CGAGPGEGRPAD-----PLHOAMRAAGDEFTFRRTFSDLAOLHTVPGSAOQRT 80

66 NGA-TGHSSTSLDAREVTPMAVAKQALREAGDEFTFRRTFSDLAOLHTVPGSAOQRT 124

81 QVSELEFGCGNMGRLVAFVFGAALCAESYKMEPLVQVDPMVAVLETRLDWIHS 140

125 QVNELEFRDQVMGRIVAFVFEFGVMCEVSYNREMSPLVNIALMMEYLNRLHHTWIDN 184

141 SGMAEF 147

185 NGMWTF 191

RESULT 14

JE0203

apoptosis regulator bcl-x isoform - human

C:Species: Homo sapiens (man)

C:Date: 21-Aug-1998 #sequence_revision 21-Aug-1998 #text_change 16-Jul-1999

C:Accession: JE0203

R:Ban, J.; Eckhart, L.; Weninger, W.; Mildner, M.; Tschachler, E.

Biochem. Biophys. Res. Commun. 248, 147-152, 1998

A:Title: Identification of a human cDNA encoding a novel bcl-x isoform.

A:Reference number: JE0203; MUID:96340865

A:Accession: JE0203

A:Molecule type: mRNA

A:Residues: 1-227 <BAN>

A:Cross-references: GB:U2398; NID:91622940; PIDN:AAJ17354.1; PID:91622941

C:Genetics:

A:Gene: bcl-x

A:Map position: 20

C:Superfamily: bcl transforming protein

Query Match 36.8%; Score 371.5; DB 2; Length 227;

Best Local Similarity 40.3%; Pred. No. 4.3e-27;

Matches 81; Conservative 19; Mismatches 50; Indels 51; Gaps 3;

11 RALVADFGYRLRQGY-----V 28

6 RELVDFLSYKLSQKYSMSQFSDVEENRTAEETEARETPPSAINGPSNHLADSPAV 65

29 CGAGPGEGRPAD-----PLHOAMRAAGDEFTFRRTFSDLAOLHTVPGSAOQRT 80

```

Db      66  NGA-TGSSSLDAREVTPMAAVKQALREAGDEFELRYRAFSDLTQSLEHTPGTAYQSFE 124
QY      81  QVSDDELFOGQPMNGRLVAFVFEFGALCAESYNKMEPELVGOVDMVAVYLETRLADWTHS 140
Db      125  QVYNELFRDGVNMGRIVAFEFSGALCVESVDKEMQVLVSRTAAWMAATYLDNDHLEPWIOE 184
QY      141  SGGWAEFTALXGDGALAEARR 161
Db      185  NGGWRTKPLVCPFSIASQOR 205

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RESULT 15

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B37332
transforming protein (bcl-2-beta) - chicken
C:Species: Gallus gallus (chicken)
C:Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 24-Apr-1998
C:Accession: B37332; S35452
R:Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.
Nucleic Acids Res. 20, 4187-4192, 1992
A:Title: Isolation and characterization of the chicken bcl-2 gene: expression in a variety of tissues
A:Reference number: A37332; MUID:92375724
A:Accession: B37332
A>Status: nucleic acid sequence not shown
A:Molecule type: DNA
A:Residues: 1-216 <EGU>
A:Cross-references: EMBL:DL1381; EMBL:DL1382
C:Superfamily: bcl transforming protein

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Query Match      35.0%; Score 353; DB 2; Length 216;
Best Local Similarity 37.8%; Pred. No. 2, 1e-25;
Matches 70; Conservative 22; Mismatches 49; Indels 44; Gaps 2;

QY      9  DTRALVADFGVYRLRQGYCGAG-----PGBGPADP----- 41
Db      10  DNREIVLKIHYKLSDRGYDWAAGEDRPVPAPAPAAVAAGAASSHHRRPPGSA 69
QY      42  -----LHOAMRAAGDEFETFRFRFTSDLAQLHYTPGSAOQRTQVSD 84
Db      70  AASEVPPAEGLRPAPGCVHLALRQAGDEFERRQYRDFQAMSGOLHTPTAHGRFVAAYE 129
QY      85  ELFOGQPMNGRLVAFVFEFGALCAESYNKMEPELVGOVDMVAVYLETRLADWTHS 144
Db      130  ELFRDGVNMGRIVAFEFSGALCVESVDKEMQVLVSRTAAWMAATYLDNDHLEPWIOE 189
QY      145  AEFTA 149
Db      190  VRACA 194

```

Search completed: June 10, 2002, 10:26:22
 Job time: 170 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: June 10, 2002, 10:32:13 ; Search time 15.84 Seconds
(without alignments)
471.772 Million cell updates/sec

Title: US-09-155-327e-9

Perfect score: 1009
Sequence: 1 MATPASPPTPRALVADFGV.....ITGVALGALVTVGAFFASK 193

Scoring table: BIOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 105224 seqs, 38719550 residues

Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database : SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	1006	99.7	193	1 BCLW_MOUSE	P70345 mus musculus
2	997	98.8	193	1 BCLW_MOUSE	O92843 homo sapien
3	647.5	64.2	228	1 ARL_XENLA	O91827 xenopus lae
4	429.5	42.6	229	1 BCLX_CHICK	O07816 gallus galli
5	428.5	42.5	233	1 BCLX_PIG	O77377 sus scrofa
6	425.5	42.2	233	1 BCLX_MOUSE	O64373 mus musculus
7	425.5	42.2	233	1 BCLX_MOUSE	P55563 rattus norv
8	424.5	42.1	233	1 BCLX_HUMAN	O07817 homo sapien
9	420.5	41.7	233	1 BCL2_CHICK	O00709 gallus galli
10	412.5	40.9	229	1 BCL2_BOVIN	O02718 bos taurus
11	410	40.6	236	1 BCL2_RAT	P49550 rattus norv
12	409	40.5	236	1 BCL2_MOUSE	P10417 mus musculus
13	408.5	40.5	239	1 BCL2_HUMAN	P10415 homo sapien
14	389	39.5	236	1 BCL2_HUMAN	O91314 homo sapien
15	366	36.3	204	1 ARL1_XENLA	O91318 xenopus lae
16	175.5	17.4	208	1 BAK_MOUSE	O08734 mus musculus
17	174	17.2	211	1 BAK_HUMAN	O16611 homo sapien
18	169	16.7	211	1 BAK2_HUMAN	O13014 homo sapien
19	156.5	15.5	192	1 BAXA_MOUSE	O07813 mus musculus
20	155.5	15.4	192	1 BAXA_MOUSE	O65690 rattus norv
21	154	15.3	192	1 BAXA_MOUSE	O07812 homo sapien
22	154	15.3	280	1 CED9_CAEL	P41958 caenorhabdi
23	148	14.7	192	1 BAXA_BOVIN	O02703 bos taurus
24	147.5	14.6	218	1 BAXB_HUMAN	O07814 homo sapien
25	144	14.3	177	1 NR13_COTJA	O90343 coturnix co
26	140.5	13.9	271	1 CED9_CABER	P41957 caenorhabdi
27	138.5	13.7	143	1 BAXD_HUMAN	P55269 homo sapien
28	119	11.8	175	1 BFL1_HUMAN	O16548 homo sapien
29	116	11.5	350	1 MCL1_HUMAN	O07820 homo sapien
30	105	10.4	172	1 BFL1_MOUSE	O07440 mus musculus
31	99.5	9.9	179	1 EAR_ASFM2	O07819 african swi
32	98.5	9.8	179	1 EAR_ASFM7	P42485 african swi
33	98.5	9.8	179	1 EAR_ASFM4	O07818 african swi

34	92.5	9.2	658	1 SQHC_BRAJA	P54924 bradyrhizob
35	86.5	8.6	3433	1 POLG_KUNUM	P14335 k genome po
36	84.5	8.4	358	1 GLNA_LACSA	P23712 lactuca sat
37	82.5	8.2	3430	1 POLG_WMY	P06935 w genome po
38	81.5	8.1	886	1 A4_DROME	P14599 drosophila
39	81	8.0	396	1 PORL_PYRFU	O51804 pyrococcus
40	80.5	8.0	236	1 YJ94_ARCFU	O28285 archaeoglob
41	79	7.8	454	1 YB48_MYCTU	O06548 mycobacteri
42	79	7.8	454	1 YJ45_MYCTU	P95269 mycobacteri
43	77.5	7.7	1440	1 POLG_JABEV	P14403 j genome po
44	77.5	7.7	3432	1 POLG_JABEV	P32886 j genome po
45	77	7.6	162	1 PHCA_STNPE	P00308 synechococc

ALIGNMENTS

RESULT 1
BCLW_MOUSE STANDARD; PRT; 193 AA.
AC P70345;
DT 01-NOV-1997 (Rel. 35, Created)
DT 01-NOV-1997 (Rel. 35, Last sequence update)
DT 15-JUL-1999 (Rel. 38, Last annotation update)
DE Apoptosis regulator Bcl-W.
GN BCL2L2 OR BCLW.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_Taxid=10090;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=96358615; PubMed=8761287;
RA Gibson L., Holmgren S.P., Huang D.C., Bernard O., Copeland N.G.,
RA Jenkins N.A., Sutherland G.R., Baker E., Adams J.M., Cory S.,
RT "Bcl-W, a novel member of the bcl-2 family, promotes cell survival.",
RL Oncogene 13:665-675(1996).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=96160183; PubMed=9500547;
RA Ross A.J., Waymire K.G., Moss J.E., Parlow A.F., Skinner M.K.,
RA Russell L.D., Macgregor G.R.;
RT "Testicular degeneration in Bclw-deficient mice.",
RL Nat. Genet. 18:251-256(1998).
CC -1- FUNCTION: PROMOTES CELL SURVIVAL.
CC -1- SUBCELLULAR LOCATION: Cytoplasmic.
CC -1- TISSUE SPECIFICITY: EXPRESSED IN ALMOST ALL MYELOID CELL LINES AND
IN A WIDE RANGE OF TISSUES, WITH HIGHEST LEVELS IN BRAIN, COLON,
AND SALIVARY GLAND.
CC -1- DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC
FUNCTION.
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
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CC -----
DR EMBL: U59746; AAB09056.1; -;
DR HSSP: Q07817; IMAZ.
DR MGD: MGI:108052; Bcl212.
DR InterPro: IPR002475; BCL212_family.
DR InterPro: IPR003093; BH4.
DR InterPro: IPR000712; Bcl-2.
DR Pfam: PF00452; Bcl-2; 1.

DR Pfam; PF02180; BH4; 1.
 DR SMART; SM00337; BCL; 1.
 DR SMART; SM00265; BH4; 1.
 DR PROSITE; PS50062; BCL2_FAMILY; 1.
 DR PROSITE; PS01080; BH1; 1.
 DR PROSITE; PS01258; BH2; 1.
 DR PROSITE; PS01260; BH4_1; 1.
 DR PROSITE; PS50063; BH4_2; 1.
 DR Apoptosis.
 KW DOMAIN 9 29 BH4.
 FT DOMAIN 85 104 BH1.
 FT DOMAIN 136 151 BH2.
 SQ SEQUENCE 193 AA; 20790 MW; 36CA185F5945D7B4 CRC64;

Query Match 99.7%; Score 1006; DB 1; Length 193;
 Best Local Similarity 99.5%; Pred. No. 1.8e-82;
 Matches 192; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 MATPASPTPTRALVADVFVGYRLRQKGYVCGAGPGEGPADPLHQMRAAGDEFETFRRT 60
 DB 1 MATPASPTPTRALVADVFVGYRLRQKGYVCGAGPGEGPADPLHQMRAAGDEFETFRRT 60
 QY 61 FSDLAQLHTVTPGSAQOQRTQVSDLEFQGGPNMGRVAFVFGALCAESYNKEMEPLVG 120
 DB 61 FSDLAQLHTVTPGSAQOQRTQVSDLEFQGGPNMGRVAFVFGALCAESYNKEMEPLVG 120
 QY 121 QVODMVAAYLETRLDWTHSSGMAEFTALYGDGALFEARRLRREGNMASVRYTLTGAVAL 180
 DB 121 QVODMVAAYLETRLDWTHSSGMAEFTALYGDGALFEARRLRREGNMASVRYTLTGAVAL 180
 QY 181 GALVTGAFPAASK 193
 DB 181 GALVTGAFPAASK 193

RESULT 2
 BCLM_HUMAN STANDARD; PRT; 193 AA.
 ID BCLM_HUMAN
 AC 092843;
 DT 01-NOV-1997 (Rel. 35, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-2.
 GN BCL2L2 OR BCLW OR KIA0271.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
 OX NCBI_TaxID=9606;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA MEDLINE=96358615; PubMed=8761287;
 RA Gibson L., Holmgren S.P., Huang D.C., Bernard O., Copeland N.G.,
 RA Jenkins N.A., Sutherland G.R., Baker E., Adams J.M., Cory S.,
 RT "Bcl-2, a novel member of the bcl-2 family, promotes cell survival.";
 RT Oncogene 13:665-675(1996).
 RL [2]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Brain;
 RX MEDLINE=97191544; PubMed=9039502;
 RA Nagase T., Seki N., Ishikawa K.-I., Ohira M., Kawarabayashi Y.,
 RA Ohara O., Tanaka A., Kotani H., Miyajima N., Nomura N.;
 RT "Prediction of the coding sequences of unidentified human genes. VI.
 RT The coding sequences of 80 new genes (KIA0201-KIA0280) deduced by
 RT analysis of cDNA clones from cell line KG-1 and brain.";
 RL DNA Res. 3:321-329(1996).
 CC -1- SUBCELLULAR LOCATION: Cytoplasmic.
 CC -1- TISSUE SPECIFICITY: EXPRESSED IN ALMOST ALL MYELOID CELL LINES AND
 CC IN A WIDE RANGE OF TISSUES, WITH HIGHEST LEVELS IN BRAIN, COLON,
 CC AND SALIVARY GLAND.
 CC -1- DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC
 CC FUNCTION.

CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
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DR EMBL; U59747; AAB09055.1; -.
 DR EMBL; D87461; BAA19666.1; -.
 DR HSSP; 007817; 1MAZ.
 DR MIM; 601931; -.
 DR InterPro; IPR002475; BCL2_family.
 DR InterPro; IPR003093; BH4.
 DR InterPro; IPR000712; BCL_2.
 DR Pfam; PF00452; BCL_2; 1.
 DR Pfam; PF02180; BH4; 1.
 DR SMART; SM00337; BCL; 1.
 DR SMART; SM00265; BH4; 1.
 DR PROSITE; PS50062; BCL2_FAMILY; 1.
 DR PROSITE; PS01080; BH1; 1.
 DR PROSITE; PS01258; BH2; 1.
 DR PROSITE; PS01260; BH4_1; 1.
 DR PROSITE; PS50063; BH4_2; 1.
 KW Apoptosis.
 FT DOMAIN 9 29 BH4.
 FT DOMAIN 85 104 BH1.
 FT DOMAIN 136 151 BH2.
 SQ SEQUENCE 193 AA; 20774 MW; 3792243A50281761 CRC64;

Query Match 98.8%; Score 997; DB 1; Length 193;
 Best Local Similarity 98.4%; Pred. No. 1.1e-81;
 Matches 190; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 1 MATPASPTPTRALVADVFVGYRLRQKGYVCGAGPGEGPADPLHQMRAAGDEFETFRRT 60
 DB 1 MATPASPTPTRALVADVFVGYRLRQKGYVCGAGPGEGPADPLHQMRAAGDEFETFRRT 60
 QY 61 FSDLAQLHTVTPGSAQOQRTQVSDLEFQGGPNMGRVAFVFGALCAESYNKEMEPLVG 120
 DB 61 FSDLAQLHTVTPGSAQOQRTQVSDLEFQGGPNMGRVAFVFGALCAESYNKEMEPLVG 120
 QY 121 QVODMVAAYLETRLDWTHSSGMAEFTALYGDGALFEARRLRREGNMASVRYTLTGAVAL 180
 DB 121 QVODMVAAYLETRLDWTHSSGMAEFTALYGDGALFEARRLRREGNMASVRYTLTGAVAL 180
 QY 181 GALVTGAFPAASK 193
 DB 181 GALVTGAFPAASK 193

RESULT 3
 ARL_XENLA STANDARD; PRT; 228 AA.
 ID ARL_XENLA
 AC 091827;
 DT 01-NOV-1997 (Rel. 35, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 01-NOV-1997 (Rel. 35, Last annotation update)
 DE Apoptosis regulator R1 (XRI) (Fragment).
 OS Xenopus laevis (African clawed frog).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae; Pipidae;
 OC Xenopodinae; Xenopus.
 OX NCBI_TaxID=8335;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Head;

RX MEDLINE=95331613; PubMed=7607538;
 RA Cruz-Reyes J., Tata J.R.;
 RT "Cloning, characterization and expression of two Xenopus bcl-2-like
 RT cell-survival genes.";
 RL Gene 158:171-179(1995).
 CC -1- FUNCTION: COULD BE THE HOMOLOG OF MAMMALIAN BCL-W.
 CC -1- SUBCELLULAR LOCATION: Membrane-bound (Potential).
 CC -1- DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION ONLY OCCURS IN THE
 CC BRAIN OF MID-METAMORPHOSIS TO POST-METAMORPHOSIS TADPOLES AND
 CC ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
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 CC -----
 CC EMBL: X62462; CA57845.1; -
 CC HSSP: 007817; IMA2.
 CC InterPro: IPR002475; BCL2_family.
 CC InterPro: IPR003093; BH4.
 CC InterPro: IPR000712; BCL_2.
 CC Pfam: PF00452; Bcl-2; 1.
 CC Pfam: PF02180; BH4; 1.
 CC SMART: SM00337; BCL; 1.
 CC SMART: SM00265; BH4; 1.
 CC PROSITE: PS01080; BH1; 1.
 CC PROSITE: PS01258; BH2; 1.
 CC PROSITE: PS50062; BCL2_FAMILY; 1.
 CC Apoptosis; Transmembrane.
 KW NON_TRAN 1 1
 FT DOMAIN 120 139 BH1.
 FT TRANSMEM 171 186 BH2.
 FT SEQUENCE 207 227 POTENTIAL.
 FT 228 AA; 25068 MW; C499D449A585F8A9 CRC64;
 SQ
 Query Match 64.2%; Score 647.5; DB 1; Length 228;
 Best Local Similarity 67.9%; Pred. No. 1.4e-50;
 Matches 125; Conservative 21; Mismatches 35; Indels 3; Gaps 1;
 OY 10 TRATVADVGYRLRQKGYVCGAGPGESPADPLHQAAMRANGDEPFRFRFESDLAQLH 69
 DB 48 SRAIVEDLVRYKLCQRSIV--PEPSGAASCALSHAMRAAGDEFEERFQAFSEISTQIH 104
 OY 70 VPPGSAQGRFTVOVSELEFQGGPNNGRIVAFVFGAALCAESYKNEKMPLYGOVQDMWVAY 129
 DB 105 VPPGTAAYARFEVAGSLFQGGVNMGRIVAFVFGAALCAESYKNEKMPPLPRIDMWVY 164
 OY 130 LETRIADWTHSSGVAEFTALYDGALFEARLRREGNMAVRYTVLGAVALGALVYVGF 169
 DB 165 LETNLDMVQSGNGWNGVLLYGGALFEARLRREGNMAVRYTVLGAVALGALVYVGF 224
 OY 190 FASK 193
 DB 225 FASK 228
 RESULT 4
 BCLX_CHICK STANDARD; PRT; 229 AA.
 ID BCLX_CHICK
 AC 007816; Q98908;
 DT 01-FEB-1995 (Rel. 31, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-X.
 GN BCL2L1 OR BCLX OR BCL-X.
 OS Gallus gallus (Chicken).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Archosauromia; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
 OC Gallus.
 OC NCBI_TaxID=9031;
 RN [1]
 RP SEQUENCE FROM N.A. (SHORT FORM).
 RX MEDLINE=93364977; PubMed=8358789;
 RA Boise L.H., Gonzalez-Garcia M., Postema C.E., Ding L., Lindsten T.,
 RA Turka L.A., Mao X., Nunez G., Thompson C.B.;
 RT "bcl-x, a bcl-2-related gene that functions as a dominant regulator
 RT of apoptotic cell death.";
 RL Cell 74:597-608(1993).
 RN [2]
 RP SEQUENCE FROM N.A. (LONG FORM).
 RC STRAIN=HUBBARD WHITE MOUNTAIN; TISSUE=Testis;
 RX MEDLINE=97264485; PubMed=9110311;
 RA Vilagrasa X., Mezquita C., Mezquita J.;
 RT "Differential expression of bcl-2 and bcl-x during chicken
 RT spermatogenesis.";
 RL Mol. Reprod. Dev. 47:26-29(1997).
 CC -1- FUNCTION: DOMINANT REGULATOR OF APOPTOTIC CELL DEATH. THE LONG
 CC FORM DISPLAYS CELL DEATH REPRESSOR ACTIVITY, WHEREAS THE SHORT
 CC ISOFORM PROMOTES APOPTOSIS (BY SIMILARITY).
 CC -1- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR
 CC ENVELOPE (BY SIMILARITY).
 CC -1- ALTERNATIVE PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A
 CC SHORT FORM; ARE PRODUCED BY ALTERNATIVE SPLICING.
 CC -1- TISSUE SPECIFICITY: HIGHEST EXPRESSION IN ORGANS WITH LYMPHOID
 CC DEVELOPMENT.
 CC -1- DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC
 CC FUNCTION. INTACT BH1 AND BH2 DOMAINS ARE REQUIRED FOR ANTI-
 CC APOPTOTIC ACTIVITY (BY SIMILARITY).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC -----
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 CC -----
 CC EMBL: Z23110; CA80657.1; -
 CC EMBL: U26645; AAB07677.1; -
 CC PIR: A47537; A47537.
 CC HSSP: P53563; IAF3.
 CC InterPro: IPR002475; BCL2_family.
 CC InterPro: IPR003093; BH4.
 CC InterPro: IPR000712; BCL_2.
 CC Pfam: PF00452; Bcl-2; 1.
 CC Pfam: PF02180; BH4; 1.
 CC SMART: SM00337; BCL; 1.
 CC SMART: SM00265; BH4; 1.
 CC PROSITE: PS50062; BCL2_FAMILY; 1.
 CC PROSITE: PS01080; BH1; 1.
 CC PROSITE: PS01258; BH2; 1.
 CC PROSITE: PS01259; BH3; 1.
 CC PROSITE: PS01260; BH4_1; 1.
 CC PROSITE: PS50063; BH4_2; 1.
 CC Apoptosis; Transmembrane; Alternative splicing.
 KW DOMAIN 4 24 BH4.
 FT DOMAIN 82 96 BH3.
 FT DOMAIN 125 144 BH1.
 FT DOMAIN 176 191 BH2.
 FT TRANSMEM 206 223 POTENTIAL.
 FT VARSPLIC 185 229 ERFVLYGNNAALRGGQETFNKMLITGATVAGVLLLSL
 FT SEQUENCE 229 AA; 25733 MW; A97D3A4D04C0E9DA CRC64;
 SQ

Query Match 42.6%; Score 429.5; DB 1; Length 229;
 Best Local Similarity 41.2%; Pred. No. 3.3e-31;
 Matches 94; Conservative 23; Mismatches 62; Indels 49; Gaps 4;

11 RALVADPFGYRLRQKGY-----YCGAPGEGCP----- 37
 6 RELVDFVSTYKLSQKGSSELEEDENRTDPAEAEMDSVNGSPSMHPAGHYVNGAT 65
 38 -----AADPLHOAMRAGDEPFRFRFTPSDLAOLHTPSAQQRTQVSDE 85
 66 VHRSSLEVEHYIYASDVRRALDADGDEFLRRRFSDLTSLHTTPTAYQSEYQVNE 125
 86 LROGGNMRRLYAFVFGALCAESVKNEMEPYGVQVDMVAVYLETPLADIMISSGWA 145
 126 LPHDGVNMRIRYAFSFGALCVESVDKEMRYLVGRIVSMWYTLTDLHDPWIDENGWE 185
 146 EFTALYDGLAEARLRGCMASVRYLTGVALGALVYTGAFPAK 193
 186 RFDVLTGNNMA---AAELRKGQETENKMLTGTATVAGVLL-LGSLLSRK 229

RESULT 5

BCLX_PIG STANDARD; PRT: 233 AA.

AC 07737:
 DT 15-JUL-1999 (Rel. 38, Created)
 DT 15-JUL-1999 (Rel. 38, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-x.
 GN BCL2L1 OR BCL2L OR BCLX.
 OS Sus scrofa (Pig).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
 NCBI_TaxID=9623;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Battling B., Hoffmann J., Holtz J., Schulz R., Heusch G., Darmer D.;
 RT "Expression of apoptosis-associated genes in hibernating and stunned
 myocardium of pig";
 RL Submitted (JAN-1998) to the EMBL/GenBank/DBJ databases.
 CC -1- FUNCTION: Potent inhibitor of cell death. Inhibits activation of
 caspases (By similarity). Appears to regulate cell death by
 blocking the voltage-dependent anion channel (VDAC) by binding
 to it and preventing the release of the caspase activator,
 cytochrome c, from the mitochondrial membrane.
 CC -1- SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (By
 similarity). Heterodimerization with BAX does not seem to be
 required for anti-apoptotic activity (By similarity).
 CC -1- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANE AND PERINUCLEAR
 ENVELOPE (By similarity).
 CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity.
 CC The BH1 and BH2 domains are required for both heterodimerization
 CC with other Bcl2 family members and for repression of cell death.
 CC -1- PTM: Proteolytically cleaved by caspases during apoptosis (By
 similarity). The cleaved protein, lacking the BH4 domain, has pro-
 apoptotic activity (By similarity).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.

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 or send an email to license@sib-sib.ch).

CC EMBL: AJ001203; CAA04597.1; -
 DR HSSP: Q07817; IMAZ.

DR InterPro: IPR002475; BCL2 family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR00712; Bcl-2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS00063; BH4_2; 1.
 DR Apoptosis; Mitochondrion; Transmembrane.
 FT DOMAIN 4 24 BH4.
 FT DOMAIN 86 100 BH3.
 FT DOMAIN 129 148 BH1.
 FT DOMAIN 180 195 BH2.
 FT TRANSMEM 210 226 POTENTIAL.
 SQ SEQUENCE 233 AA; 26061 MW; 18Bf0FA0441912B2 CRC64;

Query Match 42.5%; Score 428.5; DB 1; Length 233;
 Best Local Similarity 41.3%; Pred. No. 4.1e-31;
 Matches 93; Conservative 22; Mismatches 57; Indels 53; Gaps 4;

11 RALVADPFGYRLRQKGY-----Y 28
 6 RELVDFVSTYKLSQKGSWSQFTDVEENRTAEAGTESEAEPTSAINGNPSMHLADSPAV 65
 29 CGAGPGESEPAD-----PLHOAMRAGDEPFRFRFTPSDLAOLHTPSAQQRT 80
 66 NGA-TGHSLSLDAEYVPMNAVQALAEADDEFLRRRFSDLTSLHTTPTAYQSE 124
 81 QVSELEFQGGPNMRRLYAFVFGALCAESVKNEMEPYGVQVDMVAVYLETPLADIMHS 140
 125 QVLELEFRDGVNMRIRYAFSFGALCVESVDKEMOVLSRIATWATYLTNDLHPWIDE 184
 141 SGWAEFTALYDGLAEARLRRE--GNMASVRYLTGVALGAL 183
 185 NCGMDTFVELTGNNAAMAEKRKGDERNRFLTGMTLAGVLLGSL 229

RESULT 6

BCLX_MOUSE STANDARD; PRT: 233 AA.

AC 064373; Q60657; Q60658; Q61338;
 DT 01-NOV-1997 (Rel. 35, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DE Apoptosis regulator Bcl-x.
 GN BCL2L1 OR BCL2L OR BCLX.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 NCBI_TaxID=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Kamesaki H., Michaud G.Y., Takatsu K., Okuma M.;
 RC STRAIN=2A4B;
 RL Submitted (MAR-1995) to the EMBL/GenBank/DBJ databases.
 RP SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(BETA)).
 RC STRAIN=C57BL/6; TISSUE=Brain;
 RX MEDLINE=95331139; PubMed=7607090;
 RA Gonzalez-Garcia M., Perez-Ballester R., Ding L., Duan L., Boise L.H.,
 RA Thompson C.B., Nunez G.;
 RT "bcl-XL is the major bcl-x mRNA form expressed during murine
 development and its product localizes to mitochondria";
 RL Development 120:3033-3042(1994).
 [3]
 RN [3]
 RP SEQUENCE FROM N.A. (ISOFORMS X(L); X(S) AND X(DELTA-TM)).
 RC TISSUE=Pre-B cell;

RX MEDLINE=95052604; PubMed=7963517;
 RA Fang W., Rivard J.J., Mueller D.L., Behrens T.W.;
 RT "Cloning and molecular characterization of mouse bcl-x in B and T
 RT lymphocytes.";
 RL J. Immunol. 153:4388-4398(1994).
 [4]
 RP SEQUENCE FROM N.A. (ISOFORM X(BETA)).
 RC STRAIN=C57BL/6 X CBA; TISSUE=Thymus;
 RX MEDLINE=98051053; PubMed=9380687;
 RA Yang X.-F., Weber G.F., Cantor H.;
 RT "A novel Bcl-x isoform connected to the T cell receptor regulates
 RT apoptosis in T cells.";
 RL Immunity 7:629-639(1997).
 [5]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=97289584; PubMed=9144489;
 RA Gillot D.A., Gonzalez-Garcia M., Ekheraee D., Duan L., Inohara N.,
 RA Ohta S., Seidm M.F., Nunez G.;
 RT "Genomic organization, promoter region analysis, and chromosome
 RT localization of the mouse bcl-x gene.";
 RL J. Immunol. 158:4750-4757(1997).
 CC -1- FUNCTION: Potent inhibitor of cell death. Inhibits activation of
 CC caspases (By similarity). Appears to regulate cell death by
 CC blocking the voltage-dependent anion channel (VDAC) by binding
 CC to it and preventing the release of the caspase activator,
 CC cytochrome c, from the mitochondrial membrane. The Bcl-x(S)
 CC isoform promotes apoptosis.
 CC -1- SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (By
 CC similarity). Heterodimerization with BAX does not seem to be
 CC required for anti-apoptotic activity (By similarity).
 CC -1- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR
 CC ENVELOPE FOR BCL-X(L). CYTOPLASMIC FOR BCL-X(DELTA-TM).
 CC -1- ALTERNATIVE PRODUCTS: 4 ISOFORMS: BCX-X(L) (SHOWN HERE), BCL-X(S),
 CC BCL-X(BETA) AND BCL-X(DELTA-TM); ARE PRODUCED BY ALTERNATIVE
 CC SPLICING.
 CC -1- TISSUE SPECIFICITY: WIDELY EXPRESSED, WITH HIGHEST LEVELS IN THE
 CC BRAIN, THYMUS, BONE MARROW, AND KIDNEY. BCL-X(L) AND BCL-X(DELTA-
 CC TM) EXPRESSION IS ENHANCED IN B AND T LYMPHOCYTES THAT HAVE BEEN
 CC ACTIVATED.
 CC -1- DEVELOPMENTAL STAGE: BCL-X(BETA) IS EXPRESSED IN BOTH EMBRYONAL AND
 CC POSTNATAL TISSUES. WHEREAS BCL-X(L) IS PREDOMINANTLY FOUND IN
 CC POSTNATAL TISSUES.
 CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity.
 CC The BH1 and BH2 domains are required for both heterodimerization
 CC with other Bcl2 family members and for repression of cell death.
 CC -1- PTM: Proteolytically cleaved by caspases during apoptosis (By
 CC similarity). The cleaved protein, lacking the BH4 domain, has pro-
 CC apoptotic activity (By similarity).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOMOLOGY DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOMOLOGY DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOMOLOGY DOMAIN 3 (BH3).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOMOLOGY DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC -----
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 CC -----
 DR EMBL: X83574; CAA58557.1; -
 DR EMBL: L35049; AAA51039.1; -
 DR EMBL: L35048; AAA51040.1; -
 DR EMBL: U10102; AAA82174.1; -
 DR EMBL: U10101; AAA82173.1; -
 DR EMBL: U10100; AAA82172.1; -
 DR EMBL: U51279; AAC53460.1; -
 DR EMBL: U78031; AAB96881.1; -
 DR EMBL: U78030; AAB96881.1; JOINED.
 DR HSP: P53563; IAF3
 DR MGI: 88139; Bcl2l.

DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; BCL2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00337; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 DR Apoptosis; Mitochondrion; Alternative splicing; Transmembrane.
 KW DOMAIN 4 24
 FT DOMAIN 86 100 BH3.
 FT DOMAIN 129 148 BH1.
 FT DOMAIN 180 195 BH2.
 FT TRANSMEM 210 226 POTENTIAL.
 FT TRANSMEM 126 188 MISSING (IN ISOFORM BCL-X(S)).
 FT VARSPLIC 189 233 DTFVLYGNNAAESRKGGERFNRFLTGMVAGVLLGSL
 FT VARSPLIC 194 233 PSRK -> VRTTPLYCPPLACVSLCEHP (IN ISOFORM
 FT VARSPLIC 194 233 BCL-X(BETA)).
 FT VARSPLIC 194 233 LYGNNAAESRKGGERFNRFLTGMVAGVLLGSL
 FT VARSPLIC 194 233 -> GHDCGWCAGLTLLQSEVTRH (IN ISOFORM BCL-
 FT VARSPLIC 194 233 X(DELTA-TM)).
 SQ SEQUENCE 233 AA; 26132 MW; 24D2AC79887E072E CRC64;
 Query Match 42.2%; Score 425.5; DB 1; Length 233;
 Best Local Similarity 40.9%; Pred. No. 7.5e-31;
 Matches 92; Conservative 23; Mismatches 57; Indels 53; Gaps 4;
 QY 11 BALVADPVGVRRLRQKGY-----V 28
 DB 6 RELVADFLSYKLSQKGYNSQPSDYENRTEPTEARETPSAINGNPSMHLADSPAV 65
 QY 29 CGAGPGEGRPAD-----PLHQARRAAGDEFTFRFRFSDLAQLVTPGSAQGRFT 80
 DB 66 NCA-TGHSSSLDARVYIPMAVKQALREAGDEFELRYRRASDLSQLHTPTGAYQSFE 124
 QY 81 QVSDELPGCGPWRGRLVAFVFGALCAESVKKEMEPYGVQOVDMVAVYLETRLADVHS 140
 DB 125 QVYNELFRGVNGVGRVAFVSFGALCVESYKEMQVLSWMAVYLDNHPWIOE 184
 QY 141 SGMAEFTALYGDGALAEARLRE--GNWASVRYLTGAVALGAL 183
 DB 185 NGMDTFVDLYGNNAAESRKGGERFNRFLTGMVAGVLLGSL 229
 RESULT 7
 BCLX_RAT STANDARD: PRT: 233 AA.
 AC P53563; Q62678; P70614; P70613; Q62836; Q64087; Q64128;
 DT 01-OCT-1996 (Rel. 34, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-x.
 GN BCL2L1 OR BCL2L OR BCLX.
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 OX NCBI_TaxID=10116;
 RN [1]
 RP SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(S)).
 RC TISSUE=Brain;
 RA Michaelidis T.M.;
 RN Submitted (DEC-1994) to the EMBL/GenBank/DBJ databases.
 RP SEQUENCE FROM N.A.
 RC TISSUE=Brain;
 RA Wesselingh S.L., David G.L., Choi S., Velliona M., Hardwick J.M.;
 RL Submitted (JUN-1995) to the EMBL/GenBank/DBJ databases.

[3]
 RP SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(BETA)).
 RC TISSUE=THYMUS;
 RX MEDLINE=96278736; PubMed=8662675;
 RA Shiraiwa N., Inohara N., Okada S., Yuzaki M., Shoji S.-I., Ohta S.;
 RT "An additional form of rat Bcl-x, Bcl-xbeta, generated by an
 RT unsplliced RNA, promotes apoptosis in promyeloid cells";
 RL J. Biol. Chem. 271:13258-13265(1996).
 RN [4]
 RP SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(S)).
 RC STRAIN=SPRAGUE-DAWLEY; TISSUE=OVARY;
 RX MEDLINE=95129487; PubMed=7828536;
 RA Tilly J.L., Tilly K.I., Kenton M.L., Johnson A.L.;
 RT "Expression of members of the bcl-2 gene family in the immature rat
 RT ovary: equine chorionic gonadotropin-mediated inhibition of granulosa
 RT cell apoptosis is associated with decreased bax and constitutive
 RT bcl-2 and bcl-xlong messenger ribonucleic acid levels";
 RL Endocrinology 136:232-241(1995).
 RN [5]
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).
 RX MEDLINE=98010630; PubMed=9346936;
 RA Altomir M., Kunishima N., Inohara N., Ishibashi Y., Ohta S.,
 RA Morikawa K.;
 RT "Crystal structure of rat Bcl-xL. Implications for the function of
 RT the Bcl-2 protein family";
 RL J. Biol. Chem. 272:27886-27892(1997).
 CC -1- FUNCTION: Potent inhibitor of cell death. Inhibits activation of
 CC caspases (By similarity). Appears to regulate cell death by
 CC blocking the voltage-dependent anion channel (VDAC) by binding
 CC to it and preventing the release of the caspase activator.
 CC cytochrome c, from the mitochondrial membrane. The Bcl-x(S) and
 CC Bcl-x(beta) isoforms promote apoptosis.
 CC -1- SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (By
 CC similarity). Heterodimerization with BAX does not seem to be
 CC required for anti-apoptotic activity (By similarity).
 CC -1- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR
 CC ENVELOPE (By similarity).
 CC -1- ALTERNATIVE PRODUCTS: 3 ISOFORMS: BCL-X(L) (SHOWN HERE), BCL-X(S)
 CC AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.
 CC -1- TISSUE SPECIFICITY: EXPRESSED IN MOST TISSUES. BCL-X(BETA) IS
 CC SPECIFICALLY EXPRESSED IN CEREBELLUM, HEART, AND THYMUS. IN THE
 CC OVARY, THE PREDOMINANT FORM IS BCL-X(L), WITH A SMALL BUT
 CC DETECTABLE LEVEL OF BCL-X(S).
 CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity.
 CC The BH1 and BH2 domains are required for both heterodimerization
 CC with other Bcl2 family members and for repression of cell death.
 CC -1- PTM: Proteolytically cleaved by caspases during apoptotic. The
 CC cleaved protein, lacking the BH4 domain, has pro-apoptotic
 CC activity (By similarity).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC
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 CC or send an email to license@sib-sib.ch).

DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; Bcl_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 KW Apoptosis; Mitochondrion; Alternative splicing; Transmembrane;
 KM 3d-structure.
 FT DOMAIN 4 24 BH4.
 FT 86 100 BH3.
 FT 129 148 BH1.
 FT DOMAIN 180 195 BH2.
 FT TRANSMEM 210 226
 FT VARSPPLIC 126 188
 FT VARSPPLIC 189 233
 FT
 FT CONFLICT 6 6
 FT CONFLICT 12 12
 FT CONFLICT 64 64
 FT CONFLICT 81 81
 FT CONFLICT 119 119
 FT CONFLICT 143 144
 FT CONFLICT 199 201
 FT CONFLICT 201
 SQ SEQUENCE 233 AA; 26158 MW; 2862B6C63864BC8F CRC64;
 Query Match 42.2%; Score 425.5; DB 1; Length 233;
 Best Local Similarity 40.9%; Pred. No. 7.5e-31;
 Matches 92; Conservative 23; Mismatches 57; Indels 53; Gaps 4;
 QY 11 RALVADFEVYRRLKRGKGY-----V 28
 DB 6 RELVADFLSKYKSGQGYMSQSDVEENKTEPTEPERETPSAINGNPSMHLADSPAV 65
 QY 29 CGAGGEGEAD-----PIHQARRAGDEFTFRFRFSDLAOLHTVPGSAQGRFT 80
 DB 66 NCA-TGHSSSLDAREVIMAAVKQALREAGDEFFELRYRRASDLSLQHLTPGAYOSFE 124
 QY 81 QVSDLEFQCGPWWGLVAFVFGALCAESYKKEKEPLVGVGVODMVAVYLETPLADWHS 140
 DB 125 QVYNELFRGVGMGRIVAFVFGALCAESYKKEKEPLVGVGVODMVAVYLETPLADWHS 184
 QY 141 SGMAEFYALYDGLAEARRLRE--GNMASYRYVLGAVAGAL 183
 DB 185 NCGWDTFVDLVGNNAASRSKQGERFNRNPLTGMVAVAVVLGSL 229
 RESULT 8
 BCLX_HUMAN STANDARD; PRT; 233 AA.
 ID 007817; Q92976;
 AC 01-FEB-1995 (Rel. 31, Created)
 DT 01-FEB-1995 (Rel. 31, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Apoptosis regulator Bcl-x.
 GN BCL2L1 OR BCL2L OR BCLX.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominiidae; Homo.
 OX NCBI_TaxID=9606;
 RN [1]
 RP SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(S)).
 RX MEDLINE=93364977; PubMed=8358789;
 RA Boise L.H., Gonzalez-Garcia M., Postema C.E., Ding L., Lindsten T.,
 RA Turka L.A., Mao X., Nunez G., Thompson C.B.;

"bcl-x, a bcl-2-related gene that functions as a dominant regulator of apoptotic cell death.";
 Cell 74:597-608(1993).
 [2]
 RN SEQUENCE FROM N.A. (ISOFORM BETA).
 RA Inohara N., Ohta S.,
 RL Submitted (OCT-1996) to the EMBL/Genbank/DBJ databases.
 RN [3]
 RP MUTAGENESIS OF GLX-138, AND HETERODIMERIZATION.
 RX MEDLINE-95372373; PubMed=7644501;
 RA Sedlak T.W., Olvtal Z.N., Yang E., Wang K., Boise L.H., Thompson C.B.,
 RT Kormeyer S.J.;
 RT "Multiple Bcl-2 family members demonstrate selective dimerizations with Bax.";
 RT Proc. Natl. Acad. Sci. U.S.A. 92:7834-7838(1995).
 RN [4]
 RP MUTAGENESIS OF BH1 AND BH2 DOMAINS.
 RX MEDLINE-96170038; PubMed=8596636;
 RA Cheng E.H.-Y., Levine B., Boise L.H., Thompson C.B., Hardwick J.M.,
 RT Kormeyer S.J.;
 RT "Bax-independent inhibition of apoptosis by Bcl-XL.";
 RN Nature 379:554-556(1996).
 RN [5]
 RP STRUCTURE BY NMR OF 1-209.
 RX MEDLINE-97172562; PubMed=9020082;
 RA Sattler M., Liang H., Nettlesheim D., Meadows R.P., Harlan J.E.,
 RA Eberstadt M., Yoon H.S., Shuker S.B., Chang B.S., Minn A.J.,
 RT Thompson C.B., Pesik S.W.;
 RT "Structure of Bcl-XL-Bax peptide complex: recognition between regulators of apoptosis.";
 RN Science 275:983-986(1997).
 RN [6]
 RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS), AND STRUCTURE BY NMR OF 1-209.
 RX MEDLINE-96256675; PubMed=8692274;
 RA Muchmore S.W., Sattler M., Liang H., Meadows R.P., Harlan J.E.,
 RA Yoon H.S., Nettlesheim D., Chang B.S., Thompson C.B., Wong S.L.,
 RA Ng S.L., Pesik S.W.;
 RT "X-ray and NMR structure of human Bcl-XL, an inhibitor of programmed cell death.";
 RN Nature 381:335-341(1996).
 RN [7]
 RP CLEAVAGE BY CASPASES, AND MUTAGENESIS OF ASP-61.
 RX MEDLINE-98118550; PubMed=9435230;
 RA Clem R.J., Cheng E.H.-Y., Karp C.L., Kirsch D.G., Ueno K.,
 RA Takahashi A., Kastan M.B., Griffin D.E., Earnshaw W.C., Velluona M.A.,
 RA Hardwick J.M.;
 RT "Modulation of cell death by Bcl-XL through caspase interaction.";
 RN Proc. Natl. Acad. Sci. U.S.A. 95:554-559(1998).
 CC -1- FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the voltage-dependent anion channel (VDAC) by binding to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane. The Bcl-X(s) isoform promotes apoptosis.
 CC -1- SUBUNIT: Bcl-X(L) forms heterodimers with BAX, BAK and Bcl-2.
 CC Heterodimerization with BAX does not seem to be required for anti-apoptotic activity.
 CC -1- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANS AND PERINUCLEAR ENVELOPE (By similarity).
 CC -1- ALTERNATIVE PRODUCTS: 3 ISOFORMS, BCL-X(L) (SHOWN HERE), BCL-X(S) AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.
 CC -1- TISSUE SPECIFICITY: BCL-X(S) IS EXPRESSED AT HIGH LEVELS IN CELLS THAT UNDERGO A HIGH RATE OF TURNOVER, SUCH AS DEVELOPING LYMPHOCTES. IN CONTRAST, BCL-X(L) IS FOUND IN TISSUES CONTAINING LONG-LIVED POSTMITOTIC CELLS, SUCH AS ADULT BRAIN.
 CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity. The BH1 and BH2 domains are required for both heterodimerization with other Bcl2 family members and for repression of cell death.
 CC -1- PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity.
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOMOLOGY DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOMOLOGY DOMAIN 2 (BH2).

CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOMOLOGY DOMAIN 3 (BH3).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOMOLOGY DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC -----
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 CC -----
 DR EMBL; Z23116; CAAB0662.1; -
 DR EMBL; Z23115; CAAB0661.1; -
 DR EMBL; U72398; AAB17354.1; -
 DR PDB; 1BXL; 29-OCT-97.
 DR PDB; 1LXL; 21-APR-97.
 DR PDB; 1MAZ; 21-APR-97.
 DR MIM; 600039; -
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; BCL_2.
 DR Pfam; PF00452; Bcl-2; 1.
 DR Pfam; PF02180; BH4; 1.
 DR SMART; SM00337; BCL; 1.
 DR SMART; SM00265; BH4; 1.
 DR PROSITE; PS50062; BCL2_FAMILY; 1.
 DR PROSITE; PS01080; BH1; 1.
 DR PROSITE; PS01258; BH2; 1.
 DR PROSITE; PS01259; BH3; 1.
 DR PROSITE; PS01260; BH4_1; 1.
 DR PROSITE; PS01063; BH4_2; 1.
 DR Apoptosis; Mitochondrion; Alternative splicing; Transmembrane;
 KW 3D-structure.
 FT 4 24
 FT DOMAIN 86 100 BH4.
 FT DOMAIN 129 148 BH3.
 FT DOMAIN 180 195 BH1.
 FT TRANSMEM 210 226 BH2.
 FT SITE 61 61 POTENTIAL.
 FT VARSPPLIC 126 188 CLEAVAGE BY CASPASE-1.
 FT VARSPPLIC 189 233 MISSING (IN ISOFORM BCL-X(S)).
 FT DFEYLGNNAAEGRKGRFNNWFLTGTVGVLLGSL
 FT FSKR -> VTRKPLVCFPSLASGRSTALLILFLICWVI
 FT VGVDS (IN ISOFORM BCL-X(BETA)).
 FT D->A: NO CLEAVAGE BY CASPASE-1 NOR BY
 FT CASPASE-3.
 FT FRD->VRA: NO HETERODIMERIZATION WITH BAX.
 FT VNM->ATL: LOSS OF ANTI-APOPTOTIC
 FT ACTIVITY.
 FT GRI->ELN: LOSS OF ANTI-APOPTOTIC
 FT ACTIVITY.
 FT G->A: NO HETERODIMERIZATION WITH BAX.
 FT G->E: NO HETERODIMERIZATION WITH BAX.
 FT D->A: NO EFFECT ON CASPASE-1 CLEAVAGE.
 FT D->A: NO EFFECT ON CASPASE-1 CLEAVAGE.
 FT WD->GA: REDUCES ANTI-APOPTOTIC ACTIVITY
 FT BY ABOUT HALF.
 FT D->A: NO EFFECT ON CASPASE-1 CLEAVAGE.
 FT G->A (IN REF. 1; CAAB0661).
 FT MUTAGEN 189 189
 FT CONFLICT 70 70
 FT SEQUENCE 233 AA; 26049 MW; E09D3CDD851AE9BE CRC64;
 SQ
 Query Match 42.1%; Score 424.5; DB 1; Length 233;
 Best Local Similarity 40.9%; Pred. No. 9.2e-31;
 Matches 92; Conservative 23; Mismatches 57; Indels 53; Gaps 4;
 OY 11 RALVADFYGYRLRQKGY-----V 28
 DB 6 RELVADFLSYKLSQKGYMSQPSDVEENKTEAPBTESEMTPEPSAINGNPSMHLADSPAY 65
 OY 29 CGAGGEGPAD-----PLHQAMRAAGDEFFERFRFRPSDLAOLHVTPGSAOQRF 80
 DB 66 NGA-TGHSSLDAREVYMAAVKQALREAGDEFFELRYRRARSDDLTSQHLTPPGAYQSE 124

QY 81 QVSELEFGGPMGRVLAFFVFGALCAESYKMEPLVGVQVDMVAYLETRLADWHS 140
 DB 125 QVNELEFPGVNMGRVIAFFVFGALCVESYKMEQLVSLAMMATYINDHLEPWIQE 164
 QY 141 SGGAAEFALYDGALEBARLRE--GNWASRVVLTGAVAGAL 183
 DB 185 NGMDTEVELYGNNAAESRKGRFNRWFLTGMTVAGVLLGSL 229

RESULT 9
 BCL2_CHICK STANDARD; PRT; 233 AA.

AC Q00709;
 DT 01-APR-1993 (Rel. 25, Created)
 DT 01-APR-1993 (Rel. 25, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-2.
 GN BCL2 OR BCL-2.
 OS Gallus gallus (Chicken).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
 OC Gallus.
 OX NCBI_TaxID=9031;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=92375724; PubMed=1508712;
 RA Eguich Y., Ewert D.L., Tsujimoto Y.;
 RT "Isolation and characterization of the chicken bcl-2 gene: expression
 in a variety of tissues including lymphoid and neuronal organs in
 adult and embryo.";
 RL Nucleic Acids Res. 20:4187-4192(1992).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC TISSUE-B-cell lymphoma;
 RX MEDLINE=92379084; PubMed=1511008;
 RA Cazals-Hatem D.L., Louie D.C., Tanaka S., Reed J.C.;
 RT "Molecular cloning and DNA sequence analysis of cDNA encoding chicken
 homologue of the Bcl-2 oncoprotein.";
 RL Blochm. Biophys. Acta 1132:109-113(1992).
 RT FUNCTION: Suppresses apoptosis in a variety of cell systems
 including factor-dependent lymphohematopoietic and neural cells.
 CC Regulates cell death by controlling the mitochondrial membrane
 permeability. Appears to function in a feedback loop system with
 caspases. Inhibits caspase activity either by preventing the
 release of cytochrome c from the mitochondria and/or by binding to
 the apoptosis-activating factor (APAF-1).
 CC SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and
 Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2
 domains, and is necessary for anti-apoptotic activity (By similarity).
 CC SIMILARITY: Also interacts with APAF-1 and Raf-1 (By similarity).
 CC SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
 membrane of the nuclear envelope and the endoplasmic reticulum.
 CC TISSUE SPECIFICITY: In adult chicken expressed, in thymus, spleen,
 kidney, heart, ovary and brain, with the highest levels in the
 thymus. In the embryo, highly levels expressed in all tissues with
 high levels in the bursa of Fabricius.
 CC DOMAIN: The BH4 domain is required for anti-apoptotic activity and
 for interaction with Raf-1 (By similarity).
 CC SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
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 or send an email to license@sib.ch).

DR EMBL: D11382; BAA01978.1;
 DR EMBL: D11381; BAA01978.1; JOINED.
 DR EMBL: Z11961; CAA78018.1;
 DR PIR: A37332; A37332.
 DR PIR: S24390; S24390.
 DR HSSP: Q07817; 1MA2.
 DR InterPro: IPR002475; BCL2_Family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR00712; Bcl-2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00362; BH4; 1.
 DR PROSITE: PS00062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 KW Apoptosis; Transmembrane; Mitochondrion.
 FT DOMAIN 10 30
 FT DOMAIN 87 101 BH4.
 FT DOMAIN 130 149 BH3.
 FT DOMAIN 181 196 BH2.
 FT TRANSMEM 208 228 POTENTIAL.
 FT CONFLICT 64 64 E -> S (IN REF. 2).
 FT CONFLICT 67 82 GSAAAEVPAEGLRP -> ARLLVRCPRLRGCA
 (IN REF. 2).
 FT CONFLICT 121 121 H -> T (IN REF. 2).
 FT CONFLICT 139 139 G -> V (IN REF. 2).
 SQ SEQUENCE 233 AA; 25687 MW; 5252555ACB6E4C3D CRC64;

Query Match 41.7%; Score 420.5; DB 1; Length 233;
 Best Local Similarity 37.6%; Pred. No. 2.1e-30;
 Matches 86; Conservativity 33; Mismatches 61; Indels 49; Gaps 4;

QY 9 DFRALVADEVGYRLRQKGYCGAG-----PGECPADP----- 41
 DB 10 DNRREIVLKYHYKLSQRGYDMAGEDRPVPAPAPAAVAAGASSHHREPPGSA 69
 QY 42 -----LHQAMRAGDEFFERFRFTESDLAQLHYVTGSGAQRFYQSD 84
 DB 70 AAEVPPAEGLRPADPGVHLALRQGDSESRYYQDFQMSGLHLVPTAHGRFAVVE 129
 QY 85 ELFGGPMGRVLAFFVFGALCAESYKMEPLVGVQVDMVAYLETRLADWHS 144
 DB 130 ELFRDGVNMGRVIAFFVFGALCVESYKMEQLVSLAMMATYINDHLEPWIQ 189
 QY 145 AEFTALYDGALEBARLREGNWASRVVLTGAVAGALVTVGAFFPASK 193
 DB 190 DAFVELYGN---SMRPLDFSWISLTKITLS-LVVGACITLGAIVLGHK 233

RESULT 10
 BCL2_BOVIN STANDARD; PRT; 229 AA.

AC Q02718;
 DT 16-OCT-2001 (Rel. 40, Created)
 DT 16-OCT-2001 (Rel. 40, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-2.
 GN BCL2.
 OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Bovinae; Bos.
 OX NCBI_TaxID=9913;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN-HOLSTEIN; TISSUE=Thymus;
 RA Reyes R.A., Cockerill G.L.;
 RT "Bovine leukemia virus associated-leukemogenesis is correlated

RT with suppression of programmed cell death and increased expression of Bcl-2.*
 CC Submitted (MAR-1997) to the EMBL/GenBank/DBJ databases.
 CC -i- FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAF-1) (By similarity).
 CC -i- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAf-1 (By similarity).
 CC -i- SUPPLEMENTARY LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum (By similarity).
 CC -i- DOMAIN: The BH4 domain is required for anti-apoptotic activity and for interaction with RAf-1 (By similarity).
 CC -i- PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle (By similarity). In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases. Dephosphorylated by protein phosphatase 2A (PP2A) (By similarity).
 CC -i- PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity (By similarity).
 CC -i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -i- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
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 CC -----
 CC EMBL: U92434; AAB53319.1; -.
 CC HSSP: Q07817; IMAZ.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; BCL_2.
 DR Pfam: PF00452; BCL-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS0062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS01063; BH4_2; 1.
 DR Apoptosis; Transmembrane; Mitochondrion; Phosphorylation.
 KW Apoptosis; Transmembrane; Mitochondrion; Phosphorylation.
 FT DOMAIN 10 30
 FT DOMAIN 64 68 POLY-PRO.
 FT DOMAIN 69 72 POLY-ALA.
 FT DOMAIN 83 97 BH3.
 FT DOMAIN 126 145 BH1.
 FT DOMAIN 177 192 BH2.
 FT TRANSMEM 202 223 POTENTIAL.
 FT SITE 34 35 CLEAVAGE (BY CASPASES) (BY SIMILARITY).
 FT MOD_RES 63 63 PHOSPHORYLATION (BY PKC) (BY SIMILARITY).
 SQ SEQUENCE 229 AA; 25099 MW; ADIDDAF98FFPFD CRC64;

Query Match 40.9%; Score 412.5; DB 1; Length 229;
 Best Local Similarity 37.8%; Pred. No. 1.1e-29;
 Matches 85; Conservative 36; Mismatches 59; Indels 45; Gaps 5;
 QY 9 DTRALVADPEFYRLRQKGYCGAG-----PGE----- 35
 DB 10 DNRRIYKVIHYKLSRGYEMDGADGAPGAPAPGILSSQGRTPADSRTSPPPPA 69
 QY 36 ----GRADP-----LHQAMRAAGDEFFTRFRRTSDLAQLHVPGSAGQRTQVSDLEFQ 88
 DB 70 AAAGPASPVPYVYHLLRLRAGDDFSRRYRDRFAEMSSQHLPTFAREFATVVELEFR 129
 QY 89 GGPWNGRLVAFVFGAALCAESYKNEKMEPLVGVQYDMMVAYLETRLADWTHSSGMAEFT 148
 DB 130 DGVWNGRIVAFEEFGGVCEVSYNREMSPLVDSIALMTEYLNRHLHTWIDNGMDAFV 189
 QY 149 ALYGDGALFEARRLREGNNASVRTVLGVAVALGALVYGVGFSPK 193
 DB 190 ELYG----PSMRPLEDFSMTLKLISLAL-VGACITLVGAYLGHK 229
 RESULT 11
 BCL2_RAT STANDARD; PRT; 236 AA.
 ID BCL2_RAT
 AC P49950; Q62837; Q64032;
 DT 01-OCT-1996 (Rel. 34, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-2.
 GN BCL2 OR BCL-2.
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 OX NCBI_Taxid=10116;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Brain;
 RX MEDLINE=94193015; PubMed=8144041;
 RA Sato T., Irie S., Krajewski S., Reed J.C.;
 RT "Cloning and sequencing of a cDNA encoding the rat Bcl-2 protein.";
 RL Gene 140:291-292(1994).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Ovary;
 RX MEDLINE=95129487; PubMed=7828536;
 RA Tilly J.L., Tilly K.I., Kenton M.L., Johnson A.L.;
 RT "Expression of members of the bcl-2 gene family in the immature rat ovary: equine chorionic gonadotropin-mediated inhibition of granulosa cell apoptosis is associated with decreased bax and constitutive bcl-2 and bcl-xiong messenger ribonucleic acid levels.";
 RL Endocrinology 136:232-241(1995).
 RN [3]
 RP SEQUENCE OF 19-172 FROM N.A.
 RX MEDLINE=9505917; PubMed=7969891;
 RA Castren E., Ohga Y., Berzaghi M.P., Tzimagiorgis G., Thoenen H., Lindholm D.;
 RT "bcl-2 messenger RNA is localized in neurons of the developing and adult rat brain.";
 RL Neuroscience 61:165-177(1994).
 CC -i- FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAF-1).
 CC -i- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAf-1 (By similarity).
 CC -i- SUPPLEMENTARY LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum.
 CC -i- TISSUE SPECIFICITY: Expressed in a variety of tissues, with

CC for interaction with RAF-1.
 CC -1- PTK: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2
 CC anti-apoptotic activity. Growth factor-stimulated phosphorylation
 CC on Ser-70 by PKC is required for the anti-apoptosis activity and
 CC occurs during the G2/M phase of the cell cycle. In the absence of
 CC growth factors, Bcl2 appears to be phosphorylated by other protein
 CC kinases such as ERKs and stress-activated kinases.
 CC Dephosphorylated by protein phosphatase 2A (PP2A).
 CC -1- PTK: Proteolytically cleaved by caspases during apoptosis. The
 CC cleaved protein, lacking the BH4 domain, has pro-apoptotic
 CC activity, causes the release of cytochrome c into the cytosol
 CC promoting further caspase activity.
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC -----
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 CC or send an email to license@sib-sib.ch).
 CC -----
 DR EMBL: L31532; AAA37282.1; -
 DR EMBL: M16506; AAA37282.1; JOINED.
 DR EMBL: M16506; AAA37281.1; -
 DR PIR: A25960; TVMSA1.
 DR PIR: B25960; TVMSB1.
 DR PIR: E37332; E37332.
 DR HSSP: 007817; 1MAZ.
 DR MGD: MGI:88138; BCL2.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; BCL_2.
 DR Pfam: PF00452; BCL_2; 1.
 DR Pfam: PF02180; BCL_2; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4; 1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 DR Apoptosis; Alternative splicing; Transmembrane; Mitochondrion;
 KW Phosphorylation.
 FT DOMAIN 10 30 BH4.
 FT DOMAIN 90 104 BH3.
 FT DOMAIN 133 152 BH1.
 FT DOMAIN 184 199 BH2.
 FT TRANSMEM 209 230 POTENTIAL.
 FT SITE 34 35 CLEAVAGE (BY CASPASES) (BY SIMILARITY).
 FT MOD_RES 70 75 PHOSPHORYLATION (BY PKC).
 FT VARSPDIC 193 236 DAFVELYGSMPRLDFEWSLTKTLTSLALVGACITLGAYL
 FT GHK -> VGACIVE (IN ISOFORM BETA).
 FT SEQUENCE 236 AA; 26425 MW; AAB5EF6B0766B80A CRC64;
 SO

Query Match 40.5%; Score 409; DB 1; Length 236;
 Best Local Similarity 37.1%; Pred. No. 2, 2e-29;
 Matches 86; Conservative 35; Mismatches 59; Indels 52; Gaps 5;

QY 9 DTRALVADFCYRLRQKGYCGAG-----PG----- 34
 DB 10 DNREIVMKYTHYKLSQKGYEMDADADAPLGAAPPGIGISFQPESSPMAPVIREMAART 69
 QY 35 -----EGPADP-----LHQAMRAAGDEFETFRRTESDLAALQLVHTGSAQGRFTQ 81
 DB 70 SPLAPVATAGAPALSPVPCVHLTLRRAGDDFSRRYRRDEAEMSSQLHTLPFARGRFAT 129

QY 82 VSDLEFGCPNMGRLVAFVFGALCAESVKNKEMLVGVODMMVAYLETRLADIHSS 141
 DB 130 VVEELFDYDGNWGRIVAFEFEGCYWCVEVSRREMSPLVDNIALMFTFLNRHHTWTIDN 189
 QY 142 GGMAEFFALYDGCALLEARLRSGMNASVTVTLGVALALALTYVGFVFSK 193
 DB 190 GGMDFAEVLYG-----PSMRPLDFEWSLTKTLTSLAL-VGACITLGAYLGHK 236

RESULT 13
 BCL2_HUMAN
 ID BCL2_HUMAN STANDARD; PRT; 239 AA.
 AC P10415; P10416; Q16197; Q13842;
 DT 01-MAR-1989 (Rel. 10, Created)
 DT 01-APR-1993 (Rel. 25, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Apoptosis regulator Bcl-2.
 GN BCL2.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
 NX NCBI_TaxID=9606;
 RN [1]
 RP SEQUENCE FROM N.A. (ISOFORMS ALPHA AND BETA).
 RX MEDLINE=66259760; PubMed=3523487;
 RA Tsujimoto Y., Croce C.M.;
 RT "Analysis of the structure, transcripts, and protein products of
 RT bcl-2, the gene involved in human follicular lymphoma.";
 RT Proc. Natl. Acad. Sci. U.S.A. 83:5214-5218(1986).
 RN [2]
 RP REVISIONS TO 96; 110 AND 237.
 RX MEDLINE=92375724; PubMed=1508712;
 RA Eguchi Y., Ewert D.L., Tsujimoto Y.;
 RT "Isolation and characterization of the chicken bcl-2 gene: expression
 RT in a variety of tissues including lymphoid and neuronal organs in
 RT adult and embryo.";
 RT Nucleic Acids Res. 20:4187-4192(1992).
 RN [3]
 RP SEQUENCE FROM N.A. (ISOFORM ALPHA).
 RX MEDLINE=87002486; PubMed=2875799;
 RA Cleary M.L., Smith S.D., Sklar J.;
 RT "Cloning and structural analysis of cDNAs for bcl-2 and a hybrid bcl-
 RT 2/immunoglobulin transcript resulting from the t(14;18)
 RT translocation.";
 RT Cell 47:19-28(1986).
 RN [4]
 RP SEQUENCE FROM N.A. (ISOFORM ALPHA).
 RX MEDLINE=88196071; PubMed=2834197;
 RA Seto M., Jaeger U., Hockett R.D., Granlinger W., Bennett S.;
 RT "Alternative promoters and exons, somatic mutation and deregulation
 RT of the Bcl-2-Ig fusion gene in lymphoma.";
 RT EMBO J. 7:123-131(1988).
 RN [5]
 RP SEQUENCE OF 1-131 FROM N.A. (ISOFORM ALPHA), AND VARIANTS NHL.
 RX MEDLINE=92096610; PubMed=1339299;
 RA Tanaka S., Louie D.C., Kant J.A., Reed J.C.;
 RT "Frequent incidence of somatic mutations in translocated BCL2
 RT oncogenes of non-Hodgkin's lymphomas.";
 RT Blood 79:229-237(1992).
 RN [6]
 RP SUBCELLULAR LOCATION.
 RX MEDLINE=91066924; PubMed=2250705;
 RA Hockenbery D., Nunez G., Millman C., Schreiber R.D., Korsmeyer S.J.;
 RT "Bcl-2 is an inner mitochondrial membrane protein that blocks
 RT programmed cell death.";
 RT Nature 348:334-336(1990).
 RN [7]
 RP MUTAGENESIS.
 RX MEDLINE=94239528; PubMed=8183370;
 RA Yin X.-M., Oliva Z.N., Korsmeyer S.J.;
 RT "BH1 and BH2 domains of Bcl-2 are required for inhibition of
 RT apoptosis and heterodimerization with Bax.";

RL Nature 369:321-323(1994).
 RN [8]
 RP CLEAVAGE BY CASPASES, AND MUTAGENESIS.
 RA MEDLINE=98057466; PubMed=9395403;
 RX Cheng E.H.-Y., Kirsch D.G., Clem R.J., Ravi R., Kastan M.B., Bedi A.,
 RA Ueno K.J., Hardwick J.M.;
 RT "Conversion of Bcl-2 to a Bax-like death effector by caspases.";
 RL Science 278:1966-1988(1997).
 RN [9]
 RP REVIEW ON PHOSPHORYLATION.
 RA MEDLINE=21260650; PubMed=1368354;
 RX Ruvoilo P.P., Deng X., May W.S.;
 RT "Phosphorylation of Bcl2 and regulation of apoptosis.";
 RL Leukemia 15:515-522(2001).
 RN [10]
 RP PHOSPHORYLATION BY ASK1/JNK1.
 RA MEDLINE=20036804; PubMed=10567572;
 RX Yamamoto K., Ichijo H., Korsmeyer S.J.;
 RT "Bcl-2 is phosphorylated and inactivated by an ASK1/Jun N-terminal
 RT protein kinase pathway normally activated at G(2)/M.";
 RL Mol. Cell. Biol. 19:8469-8478(1999).
 CC -1- FUNCTION: Suppresses apoptosis in a variety of cell systems
 CC including factor-dependent lymphohematopoietic and neural cells.
 CC Regulates cell death by controlling the mitochondrial membrane
 CC permeability. Appears to function in a feedback loop system with
 CC caspases. Inhibits caspase activity either by preventing the
 CC release of cytochrome c from the mitochondria and/or by binding to
 CC the apoptosis-activating factor (APAF-1).
 CC -1- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and
 CC Bcl-x(l). Heterodimerization with BAX requires intact BH1 and BH2
 CC domains, and is necessary for anti-apoptotic activity (by
 CC similarity). Also interacts with APAF-1 and Raf-1.
 CC -1- SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
 CC membrane of the nuclear envelope and the endoplasmic reticulum.
 CC -1- ALTERNATIVE PRODUCTS: 2 isoforms; alpha (shown here) and beta;
 CC are produced by alternative splicing.
 CC -1- TISSUE SPECIFICITY: Expressed in a variety of tissues.
 CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity and
 CC for interaction with Raf-1.
 CC -1- PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2
 CC anti-apoptotic activity. Growth factor-stimulated phosphorylation
 CC on Ser-70 by PKC is required for the anti-apoptosis activity and
 CC occurs during the G2/M phase of the cell cycle. In the absence of
 CC growth factors, Bcl2 appears to be phosphorylated by other protein
 CC kinases such as ERKs and stress-activated kinases.
 CC -1- PTM: Proteolytically cleaved by protein phosphatase 2A (PP2A) (by similarity).
 CC cleaved protein, lacking the BH4 domain, has pro-apoptotic
 CC activity, causes the release of cytochrome c into the cytosol
 CC promoting further caspase activity.
 CC -1- DISEASE: Involved in follicular lymphoma (FL) (also known as type
 CC II chronic lymphatic leukemia) by a chromosomal translocation
 CC t(14;18)(q32;q21) which involves Bcl2 and immunoglobulin gene
 CC regions.
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC
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 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC
 CC EMBL: M13994; AAA51813.1; ALT_SEQ.
 CC EMBL: M13995; AAA51814.1; ALT_SEQ.
 CC EMBL: M14745; AAA3591.1; -
 CC EMBL: X06487; CAA29778.1; -
 CC EMBL: S72602; AAD14111.1; ALT_SEQ.

DR PIR: A29409; TVH0A1.
 DR PIR: B29409; TVH0B1.
 DR PIR: A24428; TVH0BC.
 DR PIR: C37332; C37332.
 DR PIR: D37332; D37332.
 DR HSP: 007817; IMAZ.
 DR MIM: 151430; -
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; Bcl_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS00662; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS00663; BH4_2; 1.
 DR Proto-oncogene: Apoptosis; Alternative splicing; Transmembrane;
 KW Mitochondrion; Phosphorylation; Chromosomal translocation;
 KW Polymorphism; Disease mutation;
 KW
 FT DOMAIN 10 30
 FT BH4.
 FT BH3.
 FT BH1.
 FT BH2.
 FT TRANSMEM 212 233
 FT SITE 34 35
 FT MOD_RES 70 70
 FT VASAPLIC 196 239
 FT
 FT VARIANT 7 7
 FT
 FT VARIANT 59 59
 FT
 FT
 FT VARIANT 93 93
 FT
 FT MUTAGEN 34 34
 FT MUTAGEN 64 64
 FT MUTAGEN 145 145
 FT
 FT MUTAGEN 188 188
 FT
 FT CONFLICT 48 48
 FT CONFLICT 59 59
 FT CONFLICT 117 117
 FT CONFLICT 129 129
 FT
 FT SEQUENCE 239 AA; 26266 MW; 3C49F2B714DC9CB CRC64;
 SO
 Query Match 40.5%; Score 408.5; DB 1; Length 239;
 Best Local Similarity 36.6%; Pred. No. 2.5e-29;
 Matches 86; Conservative 35; Mismatches 59; Indels 55; Gaps 5;
 QY 9 DTRALVADVGVYRLKQKGYCGAG-----PGB----- 35
 DB 10 DNEIRIVKYLHYKLISQGYEMDAGCAAPGAPAPGIFSSPGHTPPAPASRDVPAT 69
 QY 36 -----GPAADP-----LHQAMRAAGDEFTERRRFPSSDLAOLHVTGSAOQR 78
 DB 70 SPLQTPAAGPAAAGPALSPVPVYVLTLRQAGDDFSRRYRDFEAEMSSOLHLTFYARGR 129
 QY 79 FTVQSDLEFGGPNWGRVLVAFVFGAALCAESYKMEKMEPLVQYQDMVAYLETRLADMI 138
 DB 130 FAIVVEELPFDGVNMGRIYAFEEFGVGVESYNNRMSPLVDNIALMKEYLNRHLHWI 189
 QY 139 HSSGGMAEFTALVGDGALBEARLRGNMNAVYTVLTGAVAGATVYGAFFASK 193
 DB 190 QDNGWDAAFVELYG-----PSMRPLFDPSWLSLKLTLSTLAL-VGACITTLGATYLGHK 239

RESULT 14
BCL2_CR10 STANDARD; PRT: 236 AA.
ID BCL2_CR10
AC Q9JTV8;
DT 16-OCT-2001 (Rel. 40, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Apoptosis regulator Bcl-2.
GN BCL2
OS Cricetus longicaudatus (long-tailed hamster) (Chinese hamster).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC Cricetulus.
OX NCBI_TaxID=10030;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=ovary;
RX MEDLINE=20431763; PubMed=10973819;
RA Tomicic M.T., Christmann M., Kaina B.;
RT "Cloning and functional analysis of cDNA encoding the hamster Bcl-2 protein.";
RT Biochem. Biophys. Res. Commun. 275:899-903(2000).
RN [2]
RP SEQUENCE FROM N.A., AND CLEAVAGE BY CASPASES.
RX MEDLINE=21092839; PubMed=11181062;
RA Tomicic M.T., Kaina B.;
RT "Hamster Bcl-2 protein is cleaved in vitro and in cells by caspase-9 and caspase-3.";
RT Biochem. Biophys. Res. Commun. 281:404-408(2001).
CC -1- FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphomatopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAF-1) (By similarity).
CC -1- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAIF-1 (By similarity).
CC -1- SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum.
CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity and for interaction with RAIF-1 (By similarity).
CC -1- PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle (By similarity). In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases (By similarity). Dephosphorylated by protein phosphatase 2A (PP2A) (By similarity).
CC -1- PPM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity..
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
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CC EMBL: AJ271720; CAB92245.1; -
CC HSPSP; P53563; IAF3.

DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR003093; BH4_1.
DR InterPro: IPR00712; BCL2.
DR Pfam: PF00452; BCL-2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00265; BH4; 1.
DR PROSITE: PSS0062; BCL2_FAMILY; 1.
DR PROSITE: PS01080; BH1; 1.
DR PROSITE: PS01258; BH2; 1.
DR PROSITE: PS01259; BH3; 1.
DR PROSITE: PS01260; BH4_1; 1.
DR PROSITE: PSS0063; BH4_2; 1.
KW Apoptosis; Transmembrane; Mitochondrion; Phosphorylation.
FT DOMAIN 10 30 BH4.
FT DOMAIN 90 104 BH3.
FT DOMAIN 133 152 BH1.
FT DOMAIN 184 199 BH2.
FT TRANSMEM 209 230 POTENTIAL.
FT SITE 64 65 CLEAVAGE (BY CASPASE-3 AND CASPASE-9).
FT MOD_RES 70 70 PHOSPHORYLATION (BY PKC) (BY SIMILARITY).
SQ SEQUENCE 236 AA; 26491 MW; BCCADFLIER337228 CRC64;

Query Match 39.5%; Score 399; DB 1; Length 236;
Best Local Similarity 34.9%; Pred. No. 1,7e-28;
Matches 81; Conservative 35; Mismatches 64; Indels 52; Gaps 3;

QY 9 DTRALVADFEVGRILKQKX----- 27
DB 10 DREIIVMKYIHKLSORGEDWDGVDAAPLGADPTGIFSPQPSNTPAVHRDMART 69
QY 28 -----VCGAGGEGPADPLHQAMRAAGDEFERFRFTSDLAQLHYTGSAQOFRFQ 81
DB 70 SFLRPVATGTLGTLSPVPVYVHLTLRRGGDSRRYRDFEAMSSQLHFTFARGREFAT 129
QY 82 VSEDLFGGPNKRLVAFVFGAALCAESYKEMEPYGVQVDMMVAYLEFRILAMHSS 141
DB 130 VVEELFRDGVNNGRIYAFVFGVGVCSVNSREMSPLVDNLALMWTETLNRLHRLWIDDN 189
QY 142 GGAFFETALYGGALBEARLRREGNMAVSRYVLGVALGALVTGAFPAK 193
DB 190 GGNDAFVELYX-----PSVPRPLDFSLSLKTLTSLAL-VGACTITGTLYGHR 236

RESULT 15
AR11_XENLA STANDARD; PRT: 204 AA.
ID AR11_XENLA
AC Q91828;
DT 01-NOV-1997 (Rel. 35, Created)
DT 01-NOV-1997 (Rel. 35, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE Apoptosis regulator R11 (XR11).
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae; Pipidae;
OC Xenopodinae; Xenopus.
OX NCBI_TaxID=8335;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Head;
RX MEDLINE=95331613; PubMed=7607538;
RA Cruz-Reyes J., Tata J.R.;
RT "Cloning, characterization and expression of two Xenopus bcl-2-like cell-survival genes.";
RL Gene 158:171-179(1995).
CC -1- FUNCTION: CONFERS STRONG PROTECTION AGAINST CELL DEATH.
CC -1- SUBCELLULAR LOCATION: Membrane-bound (Potential).
CC -1- DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION ONLY OCCURS IN THE BRAIN OF MID-METAMORPHOSIS TO POST-METAMORPHOSIS TADPOLES AND ADULTS, WHERE AN INCREASE IN BCL-2 HOMOLOG DOMAIN 1 (BH1).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).

CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
CC -----
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: X82461; CAA57844.1; -
DR HSSP: Q07817; 1MAZ.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR003093; BH4.
DR InterPro: IPR000712; BCL_2.
DR Pfam: PF0452; BCL_2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00265; BH4; 1.
DR PROSITE: PS01080; BH1; 1.
DR PROSITE: PS01258; BH2; 1.
DR PROSITE: PS50062; BCL2_FAMILY; 1.
DR Apoptosis; Transmembrane.
KW DOMAIN 101 120 BH1.
FT DOMAIN 152 167 BH2.
FT TRANSMEM 181 198 POTENTIAL.
SQ SEQUENCE 204 AA: 23379 MW: 38FC6B6DDA4CA03 CRC64;

Query Match 36.3%; Score 366; DB 1; Length 204;
Best Local Similarity 41.5%; Pred. NO. 1.2e-25;
Matches 81; Conservative 25; Mismatches 63; Indels 26; Gaps 4;

OY 10 TRALVADFEYGRLRQKGYC-----GAGPGECPADPLHQAMR 47
DB 5 SFDLVEKEVSKRLSQ-NEACRFSNNPNMPYLMPESTSERPEGATGIVEEVLAQL 63
OY 48 AAGDEFETFRRTFSDLAQLHVTGPSAQOFRTOVSDELFOGCPNMGRLVAFVFGALC 107
DB 64 EATEFEELRYQRAFSDLTQSQHLITQDTAQOSFOYMGELFRDGTNMGRIVAFSFGALC 123
OY 108 AESVKEKEPPLVGQVODMNVAYLETRLADWIHSSGMAEFTALYGDGALAEARLRE--G 165
DB 124 VESANKEMTDLPRIVQNMVNYLEHTLQPMQENGMEAFVGLYGNNAQSRSEQRFG 183
OY 166 NMASTRVLTGVAL 180
DB 184 RLIT-VMLTGVFAL 197

Search completed: June 10, 2002, 10:32:13
Job time: 346 sec

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 10, 2002, 10:31:19 ; Search time 46.07 Seconds
(without alignments)
724.724 Million cell updates/sec

Title: US-09-155-327E-9
Perfect score: 1009
Sequence: 1 MATPASPDPDRALVADPVG.....LTGVALGALVWGAFASK 193

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 562222 seqs, 172994929 residues

Total number of hits satisfying chosen parameters: 562222

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database :
1: SPREMBL_19:*
2: sp_archaea:*
3: sp_bacteria:*
4: sp_fungi:*
5: sp_human:*
6: sp_invertebrate:*
7: sp_mammal:*
8: sp_mmc:*
9: sp_organelle:*
10: sp_phage:*
11: sp_plant:*
12: sp_rodent:*
13: sp_virus:*
14: sp_vertebrate:*
15: sp_unclassified:*
16: sp_virus:*
17: sp_bacteriap:*
17: sp_archaeap:*

pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	1002	99.3	193	11	088996
2	767	76.0	178	11	09C1W5
3	436.5	43.3	233	6	09MYW4
4	432.5	42.9	233	11	035844
5	428.5	42.5	233	6	09N1A2
6	425.5	42.2	233	6	09WZS7
7	401	39.7	180	6	09BDD5
8	401	39.7	217	11	099N35
9	399.5	39.6	180	6	09BDX7
10	397	39.3	238	13	090298
11	395	39.1	236	11	0923R6
12	371.5	36.8	188	11	09QWZ2
13	371.5	36.8	235	11	035843
14	369.5	36.6	188	4	09H1R6
15	368	36.5	204	13	0902H2
16	347	34.4	219	11	099N36

17	187	18.5	209	11	09JK59	09JK59 rattus norv
18	182	18.0	170	11	09WU15	09WU15 rattus norv
19	177.5	17.6	192	13	0919N4	0919N4 brachydanio
20	175.5	17.4	221	13	098013	098013 xenopus lae
21	165.5	16.4	125	4	09H1R5	09H1R5 homo sapien
22	163	16.2	235	5	0967D2	0967D2 geodia cydo
23	162	16.1	58	11	09R1B3	09R1B3 rattus norv
24	157.5	15.6	163	6	09WZS6	09WZS6 ovis aries
25	154	15.3	173	11	09JK13	09JK13 rattus norv
26	148.5	14.7	218	5	09N754	09N754 suberites d
27	147.5	14.6	179	4	09NYG7	09NYG7 homo sapien
28	145	14.4	149	6	09GMG7	09GMG7 ovis aries
29	144	14.3	177	13	0902N1	0902N1 gallus gall
30	142	14.1	211	13	09W6F1	09W6F1 gallus gall
31	142	14.1	212	4	09NMX3	09NMX3 homo sapien
32	141.5	14.0	179	12	09E1R2	09E1R2 meleagrid h
33	141	14.0	255	13	0919N3	0919N3 brachydanio
34	138.5	13.7	213	11	035425	035425 rattus norv
35	137.5	13.6	213	4	09ULJ2	09ULJ2 homo sapien
36	137.5	13.6	213	13	09DGJ5	09DGJ5 gallus gall
37	137.5	13.6	213	13	09NR76	09NR76 homo sapien
38	136	13.5	162	12	09DH00	09DH00 meleagrid h
39	130	12.9	330	11	0921P3	0921P3 rattus norv
40	129.5	12.8	331	11	0921P3	0921P3 mus musculu
41	127.5	12.6	91	11	0923W5	0923W5 peromyscus
42	124.5	12.3	91	11	0923W6	0923W6 peromyscus
43	121.5	12.0	174	13	09W6F2	09W6F2 gallus gall
44	121	12.0	300	5	09V9C8	09V9C8 drosophila
45	119	11.8				

ALIGNMENTS

RESULT	ID	1	PRELIMINARY:	PRT:	193 AA.
088996	088996				
AC	088996				
DT	01-NOV-1998	(TREMBlrel. 08, Created)			
DT	01-NOV-1998	(TREMBlrel. 08, Last sequence update)			
DT	01-DEC-2001	(TREMBlrel. 19, Last annotation update)			
GN	BCL-W.				
OS	Rattus norvegicus (Rat).				
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;				
OC	Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.				
OX	NCBI_Taxid=10116;				
RN	[1]				
RP	SEQUENCE FROM N.A.				
RC	STRAIN=SPRAGUE-DAWLEY; TISSUE=BRAIN;				
RX	MEDLINE=99292146; Pubmed=10366024;				
RA	Hammer S., Skoglosa Y., Lindholm D.;				
RT	"Differential expression of bcl-w and bcl-x messenger RNA in the				
RT	developing and adult rat nervous system.;"				
RL	Neuroscience 91:673-684(1999).				
DR	EMBL: AF096291; AAC64200.1; -				
DR	HSP: 007817; 1MAZ;				
DR	InterPro: IPR002475; BCL2_family.				
DR	InterPro: IPR000712; BCL-2.				
DR	InterPro: IPR003093; BH4.				
DR	pfam: PF00452; Bcl-2; 1.				
DR	pfam: PF02180; BH4; 1.				
DR	SMART: SM00337; BCL; 1.				
DR	SMART: SM00265; BH4; 1.				
DR	PROSITE: PS50062; BCL2_FAMILY; 1.				
DR	PROSITE: PS01080; BH1; 1.				
DR	PROSITE: PS01258; BH2; 1.				
DR	PROSITE: PS01260; BH4_1; 1.				
DR	PROSITE: PS50063; BH4_2; 1.				
SQ	SEQUENCE 193 AA; 20820 MW; 36D6742FA529AFB4 CRC64;				

Query Match

99.3%; Score 1002; DB 11; Length 193;

Best Local Similarity 99.0%; Pred. No. 6, 7e-80;
Matches 191; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MATPASTPDRALVADVGVRLKRGKGYCGAGPESGPAADPLHQAMRAAGDEFETRRFRT 60
1 MATPASTPDRALVADVGVRLKRGKGYCGAGPESGPAADPLHQAMRAAGDEFETRRFRT 60
Db 1 MATPASTPDRALVADVGVRLKRGKGYCGAGPESGPAADPLHQAMRAAGDEFETRRFRT 60
QY 61 FSDLAQLHVTGPSAQOQRTQVSDLEFQGGPMNGRLVAFVFGAALCAESVKNKEEPLVG 120
61 FSDLAQLHVTGPSAQOQRTQVSDLEFQGGPMNGRLVAFVFGAALCAESVKNKEEPLVG 120
Db 121 QVODMWVAVLETRLADWIMHSSGGMAEFTALYDGALEEARRLREGNMASVFTVLGAVAL 180
121 QVODMWVAVLETRLADWIMHSSGGMAEFTALYDGALEEARRLREGNMASVFTVLGAVAL 180
QY 181 GALVTGAFPAK 193
181 GALVTGAFPAK 193
Db 181 GALVTGAFPAK 193

RESULT 2

ID Q9CYW5 PRELIMINARY; PRT; 178 AA.

AC Q9CYW5; MEDLINE=21085660; PubMed=11217851;
DT 01-JUN-2001 (TREMBLrel. 17, Created)
DT 01-JUN-2001 (TREMBLrel. 17, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE BCL2-LIKE 2.
GN BCL2L2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6J; TISSUE=EMBRYO;
RA Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA Arakawa T., Hara A., Fukunishi Y., Konno H., Akechi J., Fukuda S.,
RA Aikawa K., Iwawa M., Nishi K., Kiyosawa H., Konno S., Yamahata I.,
RA Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA Pletschmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA Sakai K., Okido T., Furuno M., Aono H., Balderelli K., Barsh G.,
RA Brownstein M.J., Bult C., Fletcher N., Carninci P., de Bonaldo M.F.,
RA Gustincich S., Hill D., Hofmann M., Hume D.A., Kamuya M., Lee N.H.,
RA Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA Suzuki H., Toyooka K., Wang K.H., Weitz C., Whitaker C., Wilming L.,
RA Wyshaw-Boris A., Yoshida K., Hasegawa Y., Kawai H., Kohsaki S.,
RA Hayashizaki Y.,
RT "Functional annotation of a full-length mouse cDNA collection."
RL Nature 409:685-690(2001).
DR EMBL; AK013244; BAB28740.1; -
DR HSSP; Q07817; IMAZ.
DR MGD; MGI:108052; BCL2L2.
DR InterPro; IPR002475; BCL2_family.
DR InterPro; IPR000712; BCL_2.
DR InterPro; IPR003093; BH4.
DR Pfam; PF00452; BCL-2; 1.
DR Pfam; PF02180; BH4; 1.
DR SMART; SM00337; BCL; 1.
DR SMART; SM00265; BH4; 1.
DR SMART; SM00662; BCL2_FAMILY; 1.
DR PROSITE; PS01080; BH1; 1.
DR PROSITE; PS0063; BH4_2; 1.
SQ SEQUENCE 178 AA; 19147 MW; E2D4C3F79528B9D7 CRC64;

Query Match 76.0%; Score 767; DB 11; Length 178;
Best Local Similarity 96.0%; Pred. No. 2e-59;
Matches 144; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 MATPASTPDRALVADVGVRLKRGKGYCGAGPESGPAADPLHQAMRAAGDEFETRRFRT 60
1 MATPASTPDRALVADVGVRLKRGKGYCGAGPESGPAADPLHQAMRAAGDEFETRRFRT 60
Db 1 MATPASTPDRALVADVGVRLKRGKGYCGAGPESGPAADPLHQAMRAAGDEFETRRFRT 60
QY 61 FSDLAQLHVTGPSAQOQRTQVSDLEFQGGPMNGRLVAFVFGAALCAESVKNKEEPLVG 120
61 FSDLAQLHVTGPSAQOQRTQVSDLEFQGGPMNGRLVAFVFGAALCAESVKNKEEPLVG 120
Db 121 QVODMWVAVLETRLADWIMHSSGGMAEFTALYDGALEEARRLREGNMASVFTVLGAVAL 180
121 QVODMWVAVLETRLADWIMHSSGGMAEFTALYDGALEEARRLREGNMASVFTVLGAVAL 180
QY 181 GALVTGAFPAK 193
181 GALVTGAFPAK 193
Db 181 GALVTGAFPAK 193

RESULT 3

ID Q9MYW4 PRELIMINARY; PRT; 233 AA.

AC Q9MYW4; MEDLINE=21085660; PubMed=11217851;
DT 01-OCT-2000 (TREMBLrel. 15, Created)
DT 01-OCT-2000 (TREMBLrel. 15, Last sequence update)
DT 01-OCT-2001 (TREMBLrel. 18, Last annotation update)
DE BCL-X.
OS Oryctolagus cuniculus (Rabbit).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
OX NCBI_TaxID=9986;
RN [1]
RP SEQUENCE FROM N.A.
RA Knott J.C., Robertson L., James E.R.;
RT "Rabbit Bcl-X".
RL Submitted (JUL-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY005131; AAF88137.1; -
DR HSSP; P53563; IAF3.
DR InterPro; IPR002475; BCL2_family.
DR InterPro; IPR000712; BCL_2.
DR InterPro; IPR003093; BH4.
DR Pfam; PF00452; BCL-2; 1.
DR Pfam; PF02180; BH4; 1.
DR SMART; SM00337; BCL; 1.
DR SMART; SM00265; BH4; 1.
DR PROSITE; PS01080; BH1; 1.
DR PROSITE; PS01258; BH2; 1.
DR PROSITE; PS01259; BH3; 1.
DR PROSITE; PS01260; BH4; 1.
DR PROSITE; PS0063; BH4_2; 1.
SQ SEQUENCE 233 AA; 25986 MW; 12F0F30344D53F93 CRC64;

Query Match 43.3%; Score 436.5; DB 6; Length 233;
Best Local Similarity 41.5%; Pred. No. 2e-30; Mismatches 57; Indels 51; Gaps 4;

QY 11 RALVADVGVRLKRGKGYC-----GAG-----PCEGPA 39
11 RALVADVGVRLKRGKGYC-----GAG-----PCEGPA 39
Db 6 RELVADVGVRLKRGKGYC-----GAG-----PCEGPA 39
6 RELVADVGVRLKRGKGYC-----GAG-----PCEGPA 39
QY 40 D-----PLHQAMRAAGDEFETRRFSDLAQLHVTGPSAQOQRTQ 81
40 D-----PLHQAMRAAGDEFETRRFSDLAQLHVTGPSAQOQRTQ 81
Db 66 NGATGSSSSIDAREVTPMVAVKQALREAGDEFELRRRAFSDLTSLQHLITPGTAVQSPFQ 125
66 NGATGSSSSIDAREVTPMVAVKQALREAGDEFELRRRAFSDLTSLQHLITPGTAVQSPFQ 125
QY 82 VSDLEFQGGPMNGRLVAFVFGAALCAESVKNKEEPLVGOVODMWVAVLETRLADWIMHSS 141
82 VSDLEFQGGPMNGRLVAFVFGAALCAESVKNKEEPLVGOVODMWVAVLETRLADWIMHSS 141
Db 126 VVNELEFRDGVNMGRIVAFVFGAALCAESVKNKEEPLVSRIAAMWATYTLNDHLEPWIOEN 185
126 VVNELEFRDGVNMGRIVAFVFGAALCAESVKNKEEPLVSRIAAMWATYTLNDHLEPWIOEN 185
QY 142 GGWAFTALYDGALEEARRLRE--GNASVFTVLGAVLGAVAL 183
142 GGWAFTALYDGALEEARRLRE--GNASVFTVLGAVLGAVAL 183
Db 186 GGWDFVELLYGNNAASERKQGERENRWFILGMFVAGVLLGSL 229
186 GGWDFVELLYGNNAASERKQGERENRWFILGMFVAGVLLGSL 229

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RESULT 4
ID 035844 PRELIMINARY; PRT; 233 AA.
AC 035844;
DT 01-JAN-1998 (TREMBLrel. 05, Created)
DT 01-JAN-1998 (TREMBLrel. 05, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE BCL-XL.
GN BCL2L.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-B6/CBA; TISSUE=THYMUS;
RX MEDLINE=98051053; PubMed=9390687;
RA Yang X.-F., Weber G.F., Cantor H.,
RT "A novel Bcl-x isoform connected to the T cell receptor regulates
RT apoptosis in T cells.";
RL Immunity 7:629-639(1997).
DR EMBL: U51278; AAC53459.1; -.
DR HSSP: P53563; IAF3.
DR MGD: MGI:88139; BCL2L.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR000712; BCL_2.
DR InterPro: IPR003093; BH4.
DR Pfam: PF00452; Bcl-2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00265; BH4; 1.
DR PROSITE: PS50062; BCL2_FAMILY; 1.
DR PROSITE: PS01080; BH1; 1.
DR PROSITE: PS01258; BH2; 1.
DR PROSITE: PS01259; BH3; 1.
DR PROSITE: PS01260; BH4; 1.
DR PROSITE: PS01260; BH4_1; 1.
DR PROSITE: PS50063; BH4_2; 1.
SQ SEQUENCE 233 AA; 26033 MW; 3083F2D8327E072E CRC64;

Query Match 42.9%; Score 432.5; DB 11; Length 233;
Best Local Similarity 41.3%; Pred. No. 4.4e-30;
Matches 93; Conservative 23; Mismatches 56; Indels 53; Gaps 4;

OY 11 RALVADFGVGRRLRQKGY-----Y 28
DB 6 RELVYDFLSYKLSQKCYSMQSFSDVENRTEAPEETEARETPSAINGNPSWHLADSPAV 65
OY 29 CGAGPEGGPAD-----PLHQAMRAAGDEFEFRFRFSDLAOLHYTPGSAOQRT 80
DB 66 NGA-TGHSSSLDAREVYIPMAAVKQALREAGDEFELRYRRAFSDLTSLHTTPGTAYSFE 124
OY 81 QVSDELFGGPMGRVLAFFVFGALCAESYKMEPELVGOVDMVAVYLERLADWHS 140
DB 125 QVNNLEFRDGVNMGRIYAFFSFGALCVESYKEMQVLSRIASMMATYLDHLEPWIOE 184
OY 141 SGGMAEFYALYGDALGEARRLREG--NMASVRYVLGAVNALGL 183
DB 185 NGMDTFVFLYGNNAAESRKGRGFRNRFLLGTAVAGVLLGSL 229

RESULT 5
O9N1A2 PRELIMINARY; PRT; 233 AA.
AC 09N1A2;
DT 01-OCT-2000 (TREMBLrel. 15, Created)
DT 01-OCT-2000 (TREMBLrel. 15, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE ANTI-APOPTOTIC REGULATOR BCL-XL.
GN BCL-XL.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.

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OX NCBI_TaxID=9823;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RA Lee T.L., Canty J.M.;
RT "PCR Cloning of a Porcine bcl-xl cDNA from Heart.";
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF216205; AAF33212.1; -.
DR HSSP: Q07817; IMAZ.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR000712; Bcl_2.
DR InterPro: IPR003093; BH4.
DR Pfam: PF00452; Bcl-2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00265; BH4; 1.
DR PROSITE: PS50062; BCL2_FAMILY; 1.
DR PROSITE: PS01080; BH1; 1.
DR PROSITE: PS01258; BH2; 1.
DR PROSITE: PS01259; BH3; 1.
DR PROSITE: PS01260; BH4; 1.
DR PROSITE: PS50063; BH4_2; 1.
SQ SEQUENCE 233 AA; 26047 MW; 2FA312818B25E17D CRC64;

Query Match 42.5%; Score 428.5; DB 6; Length 233;
Best Local Similarity 41.3%; Pred. No. 9.9e-30;
Matches 93; Conservative 22; Mismatches 57; Indels 53; Gaps 4;

OY 11 RALVADFGVGRRLRQKGY-----Y 28
DB 6 RELVYDFLSYKLSQKCYSMQSFSDVENRTEAPEGTESEAETPSAINGNPSWHLADSPAV 65
OY 29 CGAGPEGGPAD-----PLHQAMRAAGDEFEFRFRFSDLAOLHYTPGSAOQRT 80
DB 66 NGA-TGHSSSLDAREVYIPMAAVKQALREAGDEFELRYRRAFSDLTSLHTTPGTAYSFE 124
OY 81 QVSDELFGGPMGRVLAFFVFGALCAESYKMEPELVGOVDMVAVYLERLADWHS 140
DB 125 QVNNLEFRDGVNMGRIYAFFSFGALCVESYKEMQVLSRIATWMTYLDHLEPWIOE 184
OY 141 SGGMAEFYALYGDALGEARRLREG--NMASVRYVLGAVNALGL 183
DB 185 NGMDTFVFLYGNNAAESRKGRGFRNRFLLGTAVAGVLLGSL 229

RESULT 6
O9WZS7 PRELIMINARY; PRT; 233 AA.
AC 09WZS7;
DT 01-OCT-2000 (TREMBLrel. 15, Created)
DT 01-OCT-2000 (TREMBLrel. 15, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 18, Last annotation update)
DE BCL-X LONG PROTEIN.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=OVARY;
RA Murray J.F., Dong Y.B., Leigh A.J., Scaramuzzi R.J., Carter N.D.;
RT "Bcl-x in the sheep ovary.";
RL Submitted (JUL-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF164517; AAF89532.1; -.
DR HSSP: P53563; IAF3.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR000712; Bcl_2.
DR InterPro: IPR003093; BH4.
DR Pfam: PF00452; Bcl-2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.

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DR SMART; SM00265; BH4; 1.
 DR PROSITE; PS50062; BCL2_FAMILY; 1.
 DR PROSITE; PS01080; BH1; 1.
 DR PROSITE; PS01258; BH2; 1.
 DR PROSITE; PS01259; BH3; 1.
 DR PROSITE; PS01260; BH4_1; 1.
 DR PROSITE; PS50063; BH4_2; 1.
 DR SEQUENCE 233 AA; 26134 MW; 012BFA1382762915 CRC64;

Query Match 42.2%; Score 425.5; DB 6; Length 233;
 Best Local Similarity 40.2%; Pred. No. 1.8e-29;
 Matches 90; Conservative 24; Mismatches 59; Indels 51; Gaps 4;

QY 11 RAIVADVGYRLRQKGY-----YGCAGP-----GEGPAA 39
 DB 6 RELVADVGYRLRQKGY-----YGCAGP-----GEGPAA 39
 QY 40 D-----PLHQAMRAAGDEFETRRFRFSDLAQLHVTGSAOQRTQ 81
 DB 66 NGATGHSRLDAREVIMAAVKQALREAGDEFELRYRRASDLTSQHLTPGTAYQSEFQ 125
 QY 82 VSDLEFGGPNWGRVLAFFVFGALCAESYKKEKPELVGOYQDMVAYLETRLADWTHSS 141
 DB 126 VVNELEFRGVNMGRIYVFFSFGALCVESYDKEMQVLVSIAETWATYLDHLEPWIOEN 185
 QY 142 GMAEFTALYGDGALAEARLRE--GNMASVRYLTGVALGAL 183
 DB 186 GGMVTFVELYGNMAAESRKQGEFNRWFLTGMTVAGVLLGSL 229

RESULT 7
 ID Q9BDD5 PRELIMINARY; PRT; 180 AA.
 AC Q9BDD5;
 DT 01-JUN-2001 (TREMBLrel. 17, Created)
 DT 01-JUN-2001 (TREMBLrel. 17, Last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
 DE ANTI-APOPTOTIC REGULATOR BCL-XL (FRAGMENT).
 OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Bovinae; Bos.
 OC NCBI_TaxID=9913;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Anilla M. Bouzat J.;
 RT "Characterization of the bovine bcl-xl gene and related pseudogenes";
 RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AF245488; AAK31307.1; -;
 DR EMBL; AF245489; AAK31308.1; -;
 DR HSSP; 007817; IMAZ.
 DR InterPro; IPR002475; BCL2_family.
 DR InterPro; IPR000712; BCL_2.
 DR Pfam; PF00452; BCL-2; 1.
 DR SMART; SM00337; BCL; 1.
 DR PROSITE; PS50062; BCL2_FAMILY; 1.
 DR PROSITE; PS01080; BH1; 1.
 DR PROSITE; PS01258; BH2; 1.
 DR PROSITE; PS01259; BH3; 1.
 FT NON_TER 1
 FT NON_TER 1
 FT SEQUENCE 180 AA; 20062 MW; 95DC436F95DABDA6 CRC64;

Query Match 39.7%; Score 401; DB 6; Length 180;
 Best Local Similarity 53.5%; Pred. No. 1.8e-27;
 Matches 76; Conservative 19; Mismatches 45; Indels 2; Gaps 1;

QY 44 QAMRAAGDEFETRRFRFSDLAQLHVTGSAOQRTQVSDLEFGGPNWGRVLAFFVFG 103
 DB 38 QALREAGDEFELRYRRASDLTSQHLTPGTAYQSEFQVNELEFRGVNMGRIYVFFSFG 97

QY 104 AALCAESYKKEKPELVGOYQDMVAYLETRLADWTHSSGMAEFTALYGDGALAEARLR 163
 DB 98 GALCVESYDKEMQVLVSIAETWATYLDHLEPWIOENGMVTFVELYGNMAAESRKQ 157
 QY 164 E--GNMASVRYLTGVALGAL 183
 DB 158 ERFNRWFLTGMTVAGVLLGSL 179

RESULT 8
 ID Q99N35 PRELIMINARY; PRT; 217 AA.
 AC Q99N35;
 DT 01-JUN-2001 (TREMBLrel. 17, Created)
 DT 01-JUN-2001 (TREMBLrel. 17, Last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
 DE B-CELL LEUKEMIA/LYMPHOMA X (FRAGMENT).
 GN BCLX.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OC NCBI_TaxID=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN=129/SVJ;
 RA Yang X.-F., Cantor H.;
 RT "Novel CDNA structure and genomic organization of apoptosis regulatory gene Bcl-x-gamma.";
 RT Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
 RL EMBL; AF135282; AAK15455.1; -;
 DR EMBL; AF135281; AAK15455.1; JOINED.
 DR HSSP; P53563; IAF3.
 DR InterPro; IPR002475; BCL2_family.
 DR InterPro; IPR000712; BCL_2.
 DR Pfam; PF00452; BCL-2; 1.
 DR SMART; SM00337; BCL; 1.
 DR PROSITE; PS50062; BCL2_FAMILY; 1.
 DR PROSITE; PS01080; BH1; 1.
 DR PROSITE; PS01258; BH2; 1.
 DR PROSITE; PS01259; BH3; 1.
 FT NON_TER 1
 FT SEQUENCE 217 AA; 24234 MW; 3B5A4E809A7DEF18 CRC64;

Query Match 39.7%; Score 401; DB 11; Length 217;
 Best Local Similarity 53.5%; Pred. No. 2.3e-27;
 Matches 76; Conservative 19; Mismatches 45; Indels 2; Gaps 1;

QY 44 QAMRAAGDEFETRRFRFSDLAQLHVTGSAOQRTQVSDLEFGGPNWGRVLAFFVFG 103
 DB 72 QALREAGDEFELRYRRASDLTSQHLTPGTAYQSEFQVNELEFRGVNMGRIYVFFSFG 131
 QY 104 AALCAESYKKEKPELVGOYQDMVAYLETRLADWTHSSGMAEFTALYGDGALAEARLR 163
 DB 132 GALCVESYDKEMQVLVSIAETWATYLDHLEPWIOENGMVTFVELYGNMAAESRKQ 191
 QY 164 E--GNMASVRYLTGVALGAL 183
 DB 192 ERFNRWFLTGMTVAGVLLGSL 213

RESULT 9
 ID Q9BDX7 PRELIMINARY; PRT; 180 AA.
 AC Q9BDX7;
 DT 01-JUN-2001 (TREMBLrel. 17, Created)
 DT 01-JUN-2001 (TREMBLrel. 17, Last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
 DE ANTI-APOPTOTIC REGULATOR BCL-XL (FRAGMENT).
 OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Bovinae; Bos.

OX NCBI_TaxID=9913;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Amilis M., Bouzat J.;
 RT "Characterization of the bovine bcl-xl gene and related pseudogenes."
 RL Submitted (MAR-2000) to the EMBL/Genbank/DBJ databases.
 DR EMBL; AF245487; AAK31306.1; -
 DR HSSP; Q07817; 1MA2.
 DR InterPro; IPR002475; BCL2_family.
 DR InterPro; IPR00712; Bcl_2.
 DR Pfam; PF00452; Bcl-2; 1.
 DR SMART; SM00337; BCL_1.
 DR PROSITE; PS0062; BCL2_FAMILY; 1.
 DR PROSITE; PS01258; BH2; 1.
 DR PROSITE; PS01259; BH3; 1.
 FT NON_TER 1 1
 FT NON_TER 180 180
 SQ SEQUENCE 180 AA; 20056 MW; 62C4C0BD055A9EF CRC64;

Query Match 39.6%; Score 399.5; DB 6; Length 180;
 Best Local Similarity 47.1%; Pred. No. 2.4e-27;
 Matches 82; Conservative 23; Mismatches 58; Indels 11; Gaps 3;

QY 20 YRLRQGYVAGAGPGEPRAD-----PLHQMRAGDEFTFRPRFSDLAQLAHT 71
 DB 7 WHLEDSPAVNGA-PGHSRSSDAREVTPMAAVKQALREAGDEFLRYRRASFSLTSLHT 65
 QY 72 PGSAGQFRTVSDLEFGGPNMGRVAFVFGAALCAESVKNKEMEDLVGOVDWVAYLE 131
 DB 66 PGTAQGEQVNLFLFDYGNMGRIYASFSGALCVESYDKEMQVLVSRIATWMAITYIN 125
 QY 132 TRLDADHSSGGAFFALYGDALREARLRE--GNMNASVRLVGAVALGAL 183
 DB 126 DHEPWIQENGMDTFVELYGNMAAESRKGDERFNKFTLTGMTVAGVLLGSL 179

RESULT 10
 ID Q90298 PRELIMINARY; PRT; 238 AA.
 AC Q90298;
 DT 01-DEC-2001 (TREMBLrel. 19, Created)
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
 DE BCL-XL-LIKE PROTEIN 1.
 GN Bclp1.
 OS Brachydanio rerio (Zebrafish) (Zebra danio).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi;
 OC Cypriniformes; Cyprinidae; Danio.
 NC NCBI_TaxID=7955;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=21299061; PubMed=11406282;
 RA Chen M.-C., Gong H.-Y., Cheng C., Wang J.-P., Hong J., Wu J.-L.;
 RT "Cloning and characterization of zfbclp1, a Bcl-XL homologue from the
 RT zebrafish, Danio rerio(1)."
 RL Blochm. Biophys. Acta 1519:127-133(2001).
 DR EMBL; AF317817; AAK81706.1; -
 SQ SEQUENCE 238 AA; 26253 MW; 6E58394933EEFDB CRC64;

Query Match 39.3%; Score 397; DB 13; Length 238;
 Best Local Similarity 35.7%; Pred. No. 5.7e-27;
 Matches 85; Conservative 29; Mismatches 62; Indels 62; Gaps 6;

QY 11 RALVADPVGRLRQKGYV-----GAG----- 32
 DB 6 RELVAFETKXLSORNPNCNHIGLTEDTNRDGAEEENGEAGATTLVNGTMTNAST 65
 QY 33 --PGSGPADPLHQ-----AMRAQDEFERFRFTFEDLAAQLHVTGSAQOR 78
 DB 66 GTPPOSASSPQRQTNSSGGIDAVKAEALRDSANEFELRYSAFNDSQLHITPATAYQS 125

QY 79 FTOYSDLEFGGPNMGRVAFVFGAALCAESVKNKEMEDLVGOVDWVAILETRLDWI 138
 DB 126 FESVADDEVFRGVNMGRVGLPFAFGALCVCEKESPLVGRVLAEMWTVYLDNHQPMI 185
 QY 139 HSSGMAEFALYGDGALREARLRREG--NMA-SVRVLTGAVAGALVTVGAFFASK 193
 DB 186 QSGGMEFRFALFPGDAAESRKSQSEPFKKLFPAGMTLLTG-----VVVGGLIAQK 236

RESULT 11
 ID Q923R6 PRELIMINARY; PRT; 236 AA.
 AC Q923R6;
 DT 01-DEC-2001 (TREMBLrel. 19, Created)
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
 DE B-CELL LYMPHOMA PROTEIN 2.
 GN BCL2.
 OS Cricetus longicaudatus (Long-tailed hamster) (Chinese hamster).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
 OC Cricetus.
 NC NCBI_TaxID=10030;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Lai D.Z., Chen W., Wang H.T.;
 RT "Construction of a robust CHO cell line for biopharmaceutical use."
 RL Submitted (JUN-2001) to the EMBL/Genbank/DBJ databases.
 DR EMBL; AF404339; AAK92201.1; -
 SQ SEQUENCE 236 AA; 26500 MW; BEDF052EF32CA8B8 CRC64;

Query Match 39.1%; Score 395; DB 11; Length 236;
 Best Local Similarity 34.9%; Pred. No. 8.5e-27;
 Matches 81; Conservative 33; Mismatches 66; Indels 52; Gaps 3;

QY 9 DTRALVADPVGRLRQKGY----- 27
 DB 10 DNRREIMKTIHYKLSQRGYEMDVGVDAAPLGAPLPGLSFQPSNPPTAVHRDMAART 69
 QY 28 -----VCCAGPGEPRADPLHQAMRAGDEFTFRPRFSDLAQLAHTVPSAQORFTQ 81
 DB 70 SPLRPVATVATGPTLSPVPVHLTLRRADDPSRRYRRDFAEWSQLHPTTAGRTAT 129
 QY 82 VSDELFGGPNMGRVAFVFGAALCAESVKNKEMEDLVGOVDWVAILETRLDWIHSS 141
 DB 130 VVEELFRDYGNGRIYAFVFGAALCAESVKNKEMEDLVGNILMMTEYLRLHRLHWIDQN 189
 QY 142 GGMAEFTALYGDGALREARLRREGMNASVRLVGAVALGALVTVGAFFASK 193
 DB 190 GGWDARFVELYG-----PSVRPLDFDPSWLSLXTLNLAL--VGACITLTGYLGK 236

RESULT 12
 ID Q90WX2 PRELIMINARY; PRT; 188 AA.
 AC Q90WX2;
 DT 01-MAY-2000 (TREMBLrel. 13, Created)
 DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
 DE BCL-X (FRAGMENT).
 GN BCL2L.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 NC NCBI_TaxID=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=20350651; PubMed=10894153;
 RA Rucker E.B. III, Dierisseau P., Wagner K.U., Garrett L.,
 RA Wynshaw-Boris A., Flaws J.A., Hennighausen L.;
 RT "Bcl-x and Bax regulate mouse primordial germ cell survival and

RT apoptosis during embryogenesis.";
 RL MOL. Endocrinol. 14:1038-1052(2000).
 DR EMBL: AF088904; AAC72232.1; -
 DR HSSP: P53563; IAF3.
 DR MGD: MGI:88139; Bcl2L.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR000712; Bcl_2.
 DR InterPro: IPR003093; BH4.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PSS0062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PSS0063; BH4_2; 1.
 DR NON TER 188
 FT SEQUENCE 188 AA; 21126 MW; 4E62F8356D248E52 CRC64;

Query Match 36.8%; Score 371.5; DB 11; Length 188;
 Best Local Similarity 42.4%; Pred. No. 7.1e-25;
 Matches 78; Conservative 17; Mismatches 38; Indels 51; Gaps 3;

OY 11 RALVADFGVGRLOKGY-----V 28
 DB 6 RELVVDLFLSKYLSQKGYMSQFSDVEENRTAEDETEARETETPSAINGNPSMHLADSPAV 65
 OY 29 CGAGPGECPAAD-----PLHQAMRAAGDEFEETFRRTFSDLAQLVHTPGSAOQRT 80
 DB 66 NGATGHSLSLDAREVIMPAAVKQALREAGDEFELRYRRAFSDLTSLQHLITPGTAQSF 124
 OY 81 QVSDLEFQGGPMGRVAFVFGALCAESVKNKEMEPVGOVODMMVAYLETRLADWTHS 140
 DB 125 QVYNELFRGVNMGRIYAFVFGALCVESVDKEMQVLSRIASMMATYLNHLEPWIOE 184
 OY 141 SGGW 144
 DB 185 NGGW 188

RESULT 13
 O35843 PRELIMINARY; PRT; 235 AA.
 AC O35843;
 DT 01-JAN-1998 (TREMBLrel. 05, Created)
 DT 01-JAN-1998 (TREMBLrel. 05, last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, last annotation update)
 DE BCL-X-GAMMA.
 GN BCL2L.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.
 OX NCBI_TaxId=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN=B6/CBA; TISSUE=THYMUS;
 RX MEDLINE=98051053; PubMed=9390687;
 RA Yang X.-F., Weber G.F., Cantor H.,
 RT "A novel Bcl-x isoform connected to the T cell receptor regulates
 RT apoptosis in T cells."
 RT Immunoty 7:629-639(1997).
 RL EMBL: U51277; AAC53458.1; -
 DR HSSP: P53563; IAF3.
 DR MGD: MGI:88139; Bcl2L.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR000712; Bcl_2.
 DR InterPro: IPR003093; BH4.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.

DR PROSITE: PSS0062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PSS0063; BH4_2; 1.
 DR SEQUENCE 235 AA; 26122 MW; 649D914C2D5378F6 CRC64;

Query Match 36.8%; Score 371.5; DB 11; Length 235;
 Best Local Similarity 42.4%; Pred. No. 9.5e-25;
 Matches 78; Conservative 17; Mismatches 38; Indels 51; Gaps 3;

OY 11 RALVADFGVGRLOKGY-----V 28
 DB 6 RELVVDLFLSKYLSQKGYMSQFSDVEENRTAEDETEARETETPSAINGNPSMHLADSPAV 65
 OY 29 CGAGPGECPAAD-----PLHQAMRAAGDEFEETFRRTFSDLAQLVHTPGSAOQRT 80
 DB 66 NGATGHSLSLDAREVIMPAAVKQALREAGDEFELRYRRAFSDLTSLQHLITPGTAQSF 124
 OY 81 QVSDLEFQGGPMGRVAFVFGALCAESVKNKEMEPVGOVODMMVAYLETRLADWTHS 140
 DB 125 QVYNELFRGVNMGRIYAFVFGALCVESVDKEMQVLSRIASMMATYLNHLEPWIOE 184
 OY 141 SGGW 144
 DB 185 NGGW 188

RESULT 14
 O9H1R6 PRELIMINARY; PRT; 188 AA.
 AC O9H1R6;
 DT 01-MAR-2001 (TREMBLrel. 16, Created)
 DT 01-MAR-2001 (TREMBLrel. 16, last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, last annotation update)
 DE BA243016.1.1 (BCL2-LIKE 1 (ISOFORM 1)) (FRAGMENT).
 GN BCL2L.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 OX NCBI_TaxId=9606;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Brown A.;
 RL Submitted (MAR-2001) to the EMBL/GenBank/DBJ databases.
 DR EMBL: AL160175; CAC10003.1; -
 DR HSSP: O07817; 1LXL.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR000712; Bcl_2.
 DR InterPro: IPR003093; BH4.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PSS0062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PSS0063; BH4_2; 1.
 DR NON TER 188
 FT SEQUENCE 188 AA; 21029 MW; 7074B6095145C324 CRC64;

Query Match 36.6%; Score 369.5; DB 4; Length 188;
 Best Local Similarity 42.4%; Pred. No. 1.1e-24;
 Matches 78; Conservative 17; Mismatches 38; Indels 51; Gaps 3;

OY 11 RALVADFGVGRLOKGY-----V 28
 DB 6 RELVVDLFLSKYLSQKGYMSQFSDVEENRTAEDETEARETETPSAINGNPSMHLADSPAV 65
 OY 29 CGAGPGECPAAD-----PLHQAMRAAGDEFEETFRRTFSDLAQLVHTPGSAOQRT 80
 DB 66 NGATGHSLSLDAREVIMPAAVKQALREAGDEFELRYRRAFSDLTSLQHLITPGTAQSF 124

QY 81 QVSDLEFGGPMKGRVAFVFGAALCAESYKMEPELVGOYQDMMVAYLETRLADWHS 140
DB 125 QVYNELFRDGVNWRIVAFVSFGALCVSEVDKEMQVLSRIAAMATYTLNDHLEPWIOE 184
QY 141 SGGM 144
DB 185 NGGM 188

RESULT 15

090ZH2 PRELIMINARY; PRT; 204 AA.
AC 090ZH2;
DT 01-DEC-2001 (TREMBLrel. 19, Created)
DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE BCL-XL.
GN Xenopus laevis (African clawed frog).
OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidoidea; Pipidae;
OC Xenopodinae; Xenopus.
OX NCBI_TaxID=8335;
RN [1]
RP SEQUENCE FROM N.A.
RA Nakajima K., Yaoita Y.;
RT "Muscle cell death occurs in the regressing tail of tadpole by a
sulcide mechanism."
RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AB055494; BAB62748.1;
SQ SEQUENCE 204 AA; 23189 MW; 1BEF1B904E29D84A CRC64;

Query Match 36.5%; Score 368; DB 13; Length 204;
Best Local Similarity 42.3%; Pred. No. 1.6e-24;
Matches 82; Conservative 24; Mismatches 64; Indels 24; Gaps 4;

QY 10 TRALVADFVGYRLRO-----KGYCGAGPGGPGP---AADPLHOAMRA 48
DB 5 SRDLVEKFFVSKLSONDACRKFSSNNPOPNALISNGTSTSERPGGATOGIVEEVLQALL 64
QY 49 AGDEFETRFRRTFSDLAQLHTVPGSAOORFTQVSDLEFGGPMKGRVAFVFGAALCA 108
DB 65 ATEEFELRYGRASDLTSQHTQDTAQOSFQGVNGELFRDGTNMGRIYAFVSFGALCV 124
QY 109 ESYNKKMEPELVGOYQDMMVAYLETRLADWHS SGMAEFALYGDALBEARLRE--GN 166
DB 125 ESANKEMTDLLPRIVQMMVYLEHTLQPMWQENGWEAFVGLGKNNAAQSRESQERFGR 184
QY 167 WASYFVLTGAVAL 180
DB 185 LRT-VMLTGVFAL 197

Search completed: June 10, 2002, 10:31:19
Job time: 392 sec

